

HEADQUARTERS

OGDEN AIR LOGISTICS CENTER

UNITED STATES AIR FORCE

HILL AIR FORCE BASE, UTAH 84406

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PROPELLANT
SURVEILLANCE REPORT
LGM-30 F&G STAGE 1
PHASE E, SERIES III
TP-H1011

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MANCP REPORT
370(77)

MAY 1977

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PROPELLANT SURVEILLANCE REPORT LGM-30 F & G STAGE I (TP-H1011)

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ABSTRACT

This report contains propellant test results from cartons of TP-H1011 bulk propellant representing LGM-30 F and G First Stage Minuteman Motors.

This report uses a statistical approach to analyze the bulk carton propellant data. Testing was accomplished in accordance with MMWRM Project M72632-5MP116P.

The data from this test period are combined with data from previous testing and entered into the GO85 computer for storage, analysis and regression analysis. From the statistical analysis of all data tested to date (twelve years for F and G), significant degradation of the propellant does not appear likely for at least two years past the oldest data point.

Each point on the regression plot represents the mean of all samples at that particular age. The number of samples at each point is indicated on the sample size summary sheet on the page accompanying each regression plot or group of regression plots. The data range at any age can be found by suitable inquiry of the GO85 system.

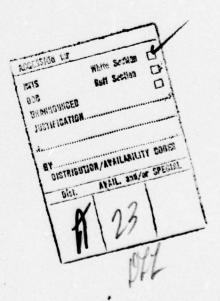


TABLE OF CONTENTS

	Page
Abstract	ii
List of Figures	iv
List of References	ix
Glossary of Terms and Abbreviations	xiii
Introduction	1
Table 1 - Test Program	3
Statistical Approach	4
Test Results	7
Conclusions	11
Distribution List	116
DD 1473	117

LIST OF FIGURES

Figure Nr		Page
	Regression Plot, Very Low Rate Tensile	
1	Strain at Maximum Stress	13
2	Maximum Stress	14
3	Strain at Rupture	15
4	Stress at Rupture	17
5	Modulus	19
	Regression Plot, Low Rate Biaxial Tensile	
6	Strain at Maximum Stress	21
7	Maximum Stress	22
8	Strain at Rupture	23
9	Stress at Rupture	24
10	Modulus	25
	Regression Plot, Low Rate Tensile	
11	Strain at Maximum Stress	27
12	Maximum Stress	28
13	Strain at Rupture	29
14	Stress at Rupture	30
15	Modulus	31
	Regression Plot, High Rate Triaxial Tensile	
16	Strain at Maximum Stress	33
17	Maximum Stress	34
18	Strain at Runture	35

Figure Nr		Page
19	Stress at Rupture	34
20	Modulus	37
	Regression Plot, High Rate Hydrostatic Tensile	
21	Strain at Maximum Stress	39
22	Maximum Stress	40
23	Strain at Rupture	41
24	Stress at Rupture	42
25	Modulus	43
	Regression Plot, Stress Relaxation .5% Strain, -65°F	
26	Modulus at 10 sec	45
27	Modulus at 50 sec	46
28	Modulus at 100 sec	47
29	Modulus at 1000 sec	48
	Regression Plot, Stress Relaxation .5% Strain, -40°F	
30	Modulus at 10 sec	50
31	Modulus at 50 sec	51
32	Modulus at 100 sec	52
33	Modulus at 1000 sec	53
	Regression Plot, Stress Relaxation 3% Strain, 20°F	
34	Modulus at 10 sec	55
35	Modulus at 50 sec	56

Figure Nr		Page
36	Modulus at 100 sec	57
37	Modulus at 1000 sec	58
	Regression Plot, Stress Relaxation 3% Strain, 77°F	
38	Modulus at 10 sec	60
39	Modulus at 50 sec	61
40	Modulus at 100 sec	62
41	Modulus at 1000 sec	63
	Regression Plot, Stress Relaxation 3% Strain, 100°F	
42	Modulus at 10 sec	65
43	Modulus at 50 sec	66
44	Modulus at 100 sec	67
45	Modulus at 1000 sec	68
	Regression Plot, Stress Relaxation 3% Strain, 140^{0} F	
46	Modulus at 10 sec	70
47	Modulus at 50 sec	71
48	Modulus at 100 sec	72
49	Modulus at 1000 sec	73
	Regression Plot, Stress Relaxation 3% Strain, 180°F	
50	Modulus at 10 sec	75
51	Modulus at 50 sec	76
52	Modulus at 100 sec	77
53	Modulus at 1000 sec	78

Figure Nr	<u>P</u>	age
	Regression Plot, Sol Gel	
54	Percent Extractables	80
55	Gel Swell Ratio	81
56	Sol Gel Density	82
57	Cross Link Density	84
58	Regression Plot, Tear Energy	85
59	Regression Plot, Hardness	87
60	Regression Plot, Burning Rate	89
	Regression Plot, Pressure Time	
61	Maximum Pressure	91
62	Time to Maximum Pressure	92
63	Regression Plot, Ignitability	94
	Regression Plot, TCLE	
64	Thermal Coefficient of Linear Expansion Below tg	96
65	Thermal Coefficient of Linear Expansion Above tg	97
	Regression Plot, TGA, 9°C rise/min	
66	Ignition Temperature	99
67	Percent Weight Loss at Ignition	100
68	Percent Weight Loss at 250°C Hold	102
	Regression Plot. DTA, 12°C rise/min	
69	Endotherm	104
70	Purchase 1	105

Figure Nr		Page
71	Exotherm 2	107
72	Exotherm 3	109
73	Ignition Temperature	111
	Regression Plot, DSC	
74	Endotherm Peak Temperature	113
75	Exotherm 1 Peak Temperature	114
76	Exotherm 2 Peak Temperature	115

LIST OF REFERENCES

Report Nr	<u>Title</u>	Report Date
	LGM-30 First Stage, Wing I Test Reports	
29A	Test Report (Missile in silo)	13 Jan 64
29В	Zero Time Test Results	29 Jan 64
29C	Zero Time Test Results (Supplement 1)	30 Mar 64
29D	Zero Time Test Results (Aft Closure)	9 Jun 64
29E	Zero Time (Aft Closure Supplement 1)	24 Jun 64
29F	ATP Phase I Test Results	30 Mar 65
29G	ATP Phase I Test Results	19 Aug 65
29н	ATP Phase I Test Results	10 Sep 65
321	Zero Time, Wings II-V Test Results	17 Mar 65
32B	Zero Time, Wings II-V Test Results (Aft Closure)	18 Mar 65
32C	ATP Phase I, Wings II-V Test Results	3 Nov 65
49	ATP Phase I, Wings II-V (First Group)	18 Mar 66
53	ATP Phase I, wings II-V (Second Group)	22 Apr 66
55	ATP Phase I, Wings II-V (Third Group)	29 Apr 66
58	ATP Phase I, Wings II-V (Fourth Group)	6 May 66
61	ATP Phase I, Wings II-V (Fifth Group)	10 Jun 66
66	ATP Phase I, wings II-V (Sixth Group)	22 Jul 66
76	ATP Phase II, Wing I Test Results	24 Jan 67
78	Zero Time, Wing VI Test Results	3 Feb 67
104	ATP Phase I, wing VI (First Group	12 Oct 67
118	ATP Phase II. Wings II-V (First Group)	5 Mar 68

LIST OF REFERENCES (CONT)

Report Nr	<u>Title</u>	Report Date
126	ATP Phase II, Wings II-V (Second Group)	11 Apr 68
130	ATP Phase II, Wings II-V (Third Group)	3 May 68
162	ATP Phase I, Wing VI (Second Group)	30 Sep 69
176	ATP Phase II, Wing VI (First Group)	15 Apr 70
181	ATP Phase III, Wing I	7 May 70
185	ATP Phase I, Wing VI (Third Group)	22 Jun 70
195	ATP Phase III, Wings II-V (Retest)	29 Oct 70
223	Surveillance Report LGM-30 Stage I (TP-H1011)	Sep 71
239	Surveillance Report LGM-30 Stage I (TP-H1011 and TP-H1043)	Apr 72
258	Surveillance Report LGM-30 A & B Stage I (TP-H1011)	Nov 72
268	Surveillance Report LGM-30 A & B Stage I (TP-H1011)	May 73
271	Surveillance Report LGM-30 F & G Stage I Phase A Series II, (TP-H1011)	Ju1 73
277	Surveillance Report LGM-30 F & G Stage I Phase A Series III, (TP-H1011)	Oct 73
280	Surveillance Report LGM-30 A & B Stage I (TP-H1011)	Nov 73
288	Propellant Surveillance Report LGM-30 A & B, Stage I, TP-H1043	Mar 74
290	Propellant Surveillance Report LGM-30 F & G, Stage I, Phase B, Series I TP-H1011	Mar 74
300	Minuteman Stage I Motor Reliability Improvement Program Surveillance	May 74

LIST OF REFERENCES (CONT)

Report Nr	<u>Title</u>	Report	Date
302	Propellant Surveillance Report LGM-30 A & B Stage 1, TP-H1011	Nov	74
313	Stage 1 Propellant Surveillance Report, Propellant Containing Glacial Acrylic Acid	0ct	74
315	Propellant Surveillance Report LGM-30 F & G Stage 1, TP-H1011	Jan	75
316	Propellant Surveillance Report LGM-30 A & B Stage 1, TP-H1011	Feb	75
319	Propellant Surveillance Report LGM-30 Dissected Motors, Phase VI, TP-H1011	Apr	75
321	Propellant Surveillance Report LGM-30 F & G Stage 1, Phase B, Series II, TP-H1011	Apr	75
325	Propellant Surveillance Report LGM-30 A & B Stage 1, TP-H1011	Jun	75
328	Propellant Surveillance Report LGM-30 A & B Stage 1, TP-H1011	Sep	75
330	Propellant Surveillance Report LGM-30 F & G Stage 1, TP-H1011	0ct	75
335	Stage 1 Motor Reliability Improvement Program	Dec	75
337	Propellant Surveillance Report LGM-30 A & B, Stage 1, TP-H1043	Feb	76
339	Stage 1, New MAPO & ERL-510 Qualification	Mar	76
341	Propellant Surveillance Report LGM-30	Mar	76

LIST OF REFERENCES (CONT)

Report Nr	<u>Title</u>	Report Date
343	Propellant Surveillance Report LGM-30 A & B, Stage 1, TP-H1011	Jun 76
345	Propellant Surveillance Report LGM-30 F & G, Stage 1 Phase B, Series III, TP-H1011	Jun 76
350	Qualification of a New MAPO Source and ERL-510 Curing Agent for Minuteman, Stage 1, UF-2121 Liner	Sep. 76
351	Propellant Surveillance Report LGM-30 A & B, Stage 1, TP-H1011	Sep 76
354	Minuteman Stage 1 Motor Reliability Improvement Program Surveillance	Sep 76
358	Propellant Surveillance Report LGM-30 Dissected Motors, Phase VIII, TP-H1011	Oct 76
360	Propellant Surveillance Report LGM-30 F & G, Stage 1 Phase E, Series III, TP-H1011	Nov 76
367	Propellant Surveillance Report LGM-30 A & B. Stage 1. TP-H1011	Apr 77

GLOSSARY OF TERMS AND ABBREVIATIONS

Aging Trend A change in properties or performance result-

ing from aging of material or component

CSA Cross Sectional Area

DB Dogbone

Degradation Gradual deterioration of properties or performance

E Modulus (psi), defined as stress divided by strain along the initial linear portion of the

curve.

EB End Bonded

EGL Effective Gage Length

em Strain at maximum stress

er Strain at rupture

"F" ratio The ratio of the variance accounted for by the

regression function to the random unexplained variance. The regression function having the most significant "F" ratio is used for plotting data. The ratio is also used in detecting signi-

ficant changes in random variation between

succeeding time points

JANNAF Joint Army, Navy, NASA, Air Force

MANCP Propellant Lab Section at Ogden Air Logistics Center

Ogden ALC Ogden Air Logistics Center, Air Force Logistics

Command

r or R The Correlation Coefficient is a measure of the degree

of closeness of the linear relationship between two

variables

Regression The general form of the regression equation

Equation is Y = a + bx

Regression Line representing mean test values with respect

Line to time

Standard error of estimate of the regression

coefficient

GLOSSARY OF TERMS AND ABBREVIATIONS (cont)

Se or Sy.X Standard deviation of the data about the

regression line

Sm Maximum Stress

Sr Stress at rupture

Standard Square root of variance Deviation (S_v)

Strain Rate Crosshead speed divided by the EGL

"t" test

A statistical test used to detect significant differences between a measured parameter and an expected value of the parameter (determines if regression slope differs from zero at the 95%

confidence level)

Variance The sum of squares of deviations of the test results from the mean of the series after division by one less than the total number of test

results

3 Sigma Band The area between the upper and lower 3 sigma limit. It can be expected that 99.73% of the inventory represented by the test samples would fall within this range assuming that the popu-

lation is normally distributed.

90-90 Band It can be stated with 90% confidence that 90% of

the inventory represented by the test samples would fall within this range assuming that the

population is normally distributed

INTRODUCTION

A. PURPOSE:

Laboratory testing has been performed for twelve years on First

Stage LGM-30 F and G Minuteman Motor propellant blocks to evaluate the effects of aging on TP-H1011 propellant. This report contains those tests conducted on propellant as instructed in MMEMP Test Directive GTD-1C, Amendment 2, LGM-30 First Stage Operational Propellant Laboratory Testing.

Statistical analysis of the data from tests performed will provide early warning if serious degradation trends develop. Annual evaluation of the propellant provides data for input into engineering reliability analysis for service life predictions.

B. BACKGROUND:

LGM-30 F and G testing was started in 1966 with phase testing at 24 month intervals (Report Numbers 78 - zero time; 104, 162, 185-Phase I, 176, 239, 257-Phase I, 271-Phase III). Report Number 257 was the first time that LGM-30 F and G data were statistically analyzed separately from LGM-30A and B data. The present report is a continuation of testing and statistical analysis.

Zero time testing for LGM-30A, B, F and G was started as soon as possible after receipt of the propellant by MANCP. Data from these tests were used to establish a base line for each test parameter. The LGM-30F and G propellant test matrix (Table 1) is used to determine the number of specimens to be taken from each propellant loaf and the specific test or tests to which these specimens are to be subjected. Very low rate and low rate tensile specimens are taken on all LGM-30F and G blocks. Specimens for other physical and combustion tests are taken from every third (LGM-30F and G) block.

SAMPLE PLAN

The Procedure for determining tests to be performed on propellant batch samples of IGM-30 F & G First Stage Motors are as follows:

1. Divide the USAF motor serial numbers into three groups by dividing the last three digits of each serial number by three to determine the remainder integer, e.g., 15μ , 3=51 with a remainder integer of 1.

2. Use the remainder integer to enter the following matrix to determine the group of tests to be performed on the forward, middle, and aft batch samples associated with a particular motor serial number.

	GROUP III	0	2	
	GROUP II	2	-	0
GROUP MATRIX	GROUP I		0	2
	PROPELLANT BATCH SAMPLE	Forward	Middle	Aft
	TP-H1011			

Each group will receive the following tests:

TEST MATRIX GROUP I GROUP II High Rate Triaxial Dynamic Response Greep Stress Relaxation Biaxial Low Rate Burning Rate TCLE Heat of Explosion Hardness Pressure Time Ignitability		GROUP III	High Rate Hydrostatic	Sol Gel	DSC	TGA	DTA	Impact
GROUP I High Rate Triaxial Greep Biaxial Low Rate TCLE Hardness Ignitability	TEST MATRIX	GROUP II	Dynamic Response	Stress Relaxation	Burning Rate	Heat of Explosion	Pressure Time	
		GROUP I	High Rate Triaxial	Creep	1	1	Hardness	Ignitability

NOTE: Low Rate and Very Low Rate Tensile tests are performed on all blocks.

STATISTICAL APPROACH

In order to determine aging trends for shelf/service life predictions, as directed by Service Engineering, First Stage LGM-30 F and G Minuteman TP-H1011 propellant blocks have been under-going testing since 1966, statistically analyzed and reported on a regular test cycle by this laboratory.

The primary reason for performing statistical analysis on test data is for the detection of propellant changes due to aging that would affect motor reliability. The method of analysis called regression was used to examine data and to draw meaningful conclusions about dependency relationships that may exist i.e., relationship between age versus test results.

In selecting the best fit model for the regression equation, six models were fitted to the data (see regression models at the end of this statistical approach). The linear model Y = a + bX was found to be the best fit model for 96% of the regression plots. The model used is shown in the regression equation at the top of every regression plot and those which are not linear will also be listed and discussed in the test results section.

Individual data points from different time periods were used to establish a least squares trend line for the data. The variance about the regression line, obtained using individual values of the dependent variable, was used to compute a tolerance interval such that at the 90% confidence level 90% of the sample distribution falls within this interval. This tolerance interval was extrapolated to a maximum of 24 months into the future from age of the oldest motor tested. The 't' values and the

significance of this statistic, which are reported for each regression model, give an indication of the "statistical significance" of the slope of the trend line as compared to a line of zero slope. Data were plotted by computer. The 'y' axis is computed so that the values at one inch intervals are peculiar to the data spread of the parameter tested. Plotted data points represent means at the particular ages at which testing occurred. The number of specimens at each age point is indicated on the sample size summary sheet accompanying the regression plot. Variance at each test age can be determined by consulting the GO85 data storage system.

A comparison of the slopes of the regression trend lines and their Y - axis intercepts found in the regression equation was performed. Of the tests common to this test period and the last test performed (MANCP Report Nr 360 (76)), the following observations were made: 23.68% of the aging trend lines have become flatter or closer to a line of zero slope which indicates less change due to age; 63.16% of the aging trend lines show more change although the changes are gradual and no operational problems are expected at this time; and 13.16% of the aging trend lines show no change from the last test period.

A post cure effect (propellant stabilizing after the first year or two) has been observed on some of the early test data (stress relaxation at -65°F, -40°F, and 20°F; TGA percent weight loss at 250°C; DTA exotherm 1, and exotherm 2); which tended to bias and skew the projected trend lines. To overcome this factor, two methods of analysis were performed: First, where possible, non-linear models were used that would best fit the total data (TGA % weight loss at 250°C, DTA exotherm 1 and exotherm 2 data); second, where non-

linear models did not fit the data, this early data was eliminated (Stress Relaxation at $-60^{\circ}F$, $-40^{\circ}F$, and $20^{\circ}F$ data). By compensating for this post cure biasing a more accurate aging trend line for service life prediction is provided.

REGRESSION MODELS

Reciprocal of X	Y = a + b (1/X)
Natural log of X	Y = a + b (LN X)
LOG to the base 10 of X	Y = a + b (LOG X)
Square Root of X	$Y = a + b \sqrt{X}$
Cube Root of X	$Y = a + b \sqrt[3]{X}$
Linear equation	Y = a + bX

TEST RESULTS

VERY LOW RATE TENSILE (0.002 in/in/min):

The very low rate tensile data shows a statistically significant decrease for strains and an increase for stresses and modulus. The trends are gradual for the respective regressions and no problems are indicated for at least two years after the last test date (Figures 1 thru 5).

LOW RATE BIAXIAL TENSILE:

A statistically significant gradual decrease is shown for strains and a statistically significant gradual increase is shown for stresses and modulus (Figures 6 thru 10).

LOW RATE TENSILE:

Low rate tensile data shows a statistically significant gradual decrease for strains and a statistically significant increase for stresses and modulus (Figures 11 thru 15).

HIGH RATE TRIAXIAL TENSILE:

The strains, stresses and modulus show a statistically significant gradual decrease (Figures 16 thru 20).

HIGH RATE HYDROSTATIC TENSILE:

The strains show a statistically significant gradual decrease with the stresses and modulus showing a statistically significant gradual increase (Figures 21 thru 25).

TENSILE SUMMARY:

The test data shows that the strain is gradually decreasing and stress and modulus is gradually increasing, except for the high rate triaxial test data which shows a gradual decrease for stress and modulus.

Therefore, based on the analysis of the data from the tensile test parameters, it does not appear that meaningful degradation is occurring at this time and no operational problems are expected for at least two years beyond the last data point.

STRESS RELAXATION MODULUS:

For the 0.5% strains at -65°F, a statistically significant gradual increase is shown (figures 26 thu 29). There is no significant trend for the 0.5% strain at -40°F except for the 1000 second regression which shows a statistically significant gradual decrease (Figures 30 thru 33).

For the 3% strain at 20°F, 77°F, 100°F, 140°F and 180°F, a statistically significant gradual increase is shown except for 20°F at 10, 50 and 100 seconds which is not changing significantly (Figures 34 thru 53).

SOL GEL:

The percent extractables do not show a statistically significant change. A statistically significant increase is shown for the gel swell ratio, sol gel density and crosslink density (Figures 54 thru 57).

TEAR ENERGY:

No significant change is shown in the regression (Figure 58).

HARDNESS:

Shore A ten second hardness data shows a statistically significant gradual increase (Figure 59).

SUMMARY OF TENSILE, HARDNESS & SOL GEL TESTING:

The tensile, hardness, stress relaxation and sol gel testing data correlate well. The regressions show a gradual decrease in strains and a gradual increase in stresses, hardness and crosslink density. The statistically significant changes are gradual and no operational problems are expected for at least two years beyond the last test data date.

BURNING RATE:

The burning rate shows a statistically significant gradual decrease. (Figure 60).

PRESSURE TIME:

Maximum pressure shows a statistically significant gradual decrease and the time to maximum pressure is not changing significantly (Figures 61 and 62).

IGNITABILITY:

Ignitability shows a statistically significant gradual increase in the time required for ignition (Figure 63).

TCLE:

The thermal coefficient of linear expansion for both below and

above the glass transition point (Tg) shows a statistically significant gradual increase (Figures 64 and 65).

TGA:

A statistically significant increase is shown for the ignition temperature (9°C rise/min) and the percent weight loss at 250° C hold (12° C rise/min to hold) with the weight loss at ignition (9°C rise/min) showing no significant change (Figures 66 thru 68). For percent weight loss at 250° C hold, Model $\frac{1}{X}$ was found to better represent the data than the linear model.

DTA:

The endotherm, first exotherm and second exotherm show a statistically significant decrease. For exotherm 1 and 2, the Model log X was found to be a better representative of the data than the linear model. The third exotherm and ignition temperatures show a statistically significant increase (Figures 69 thru 73).

DSC:

A statistically significant decrease is seen in all regressions (Figures 74 thru 76).

CONCLUSIONS

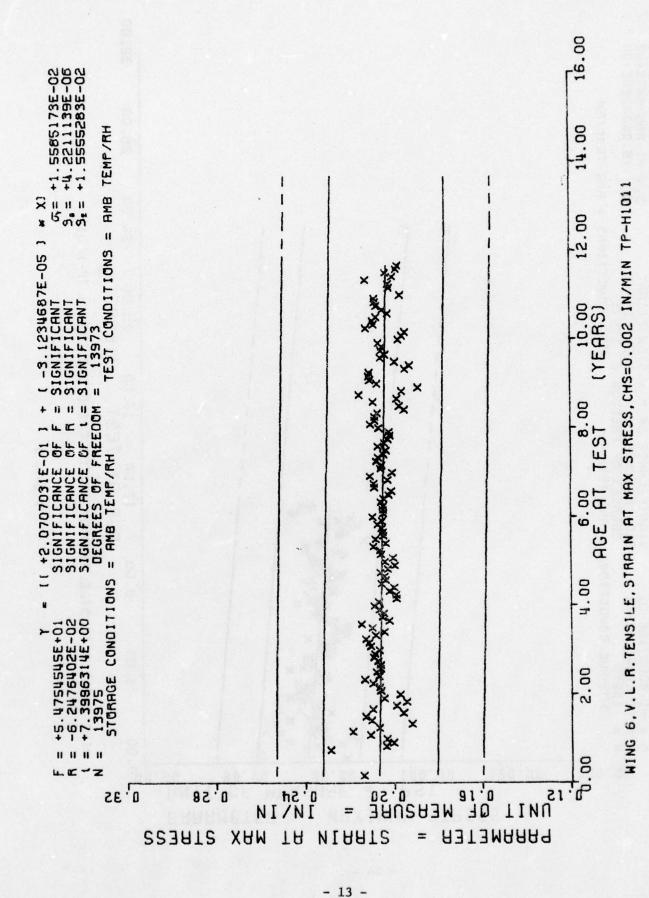
Twelve years of aging at ambient temperature (77°F) has not greatly changed the properties of the propellant. Some test parameters indicate slight aging trends, but nothing that would adversely affect the operational characteristics of the rocket motor propellant.

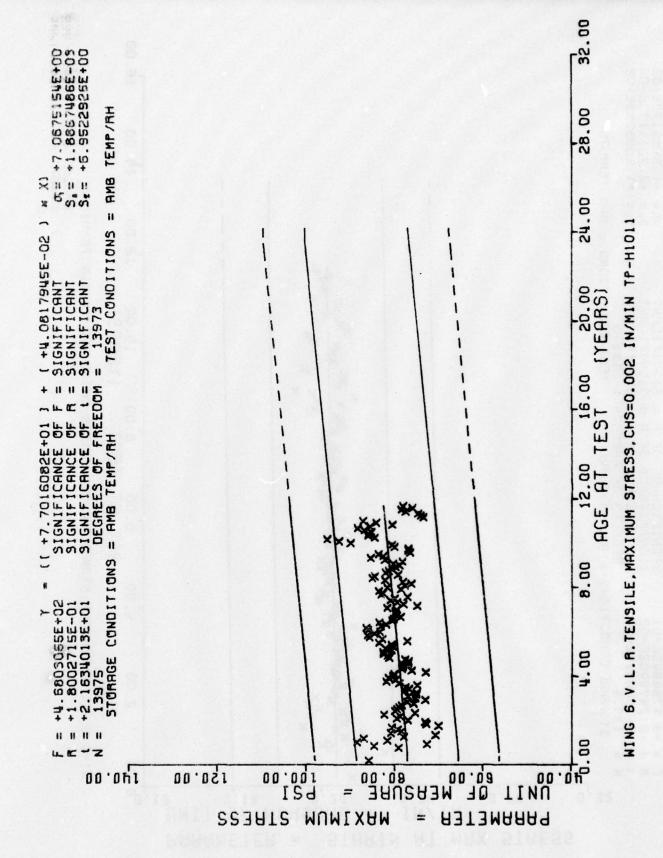
From the statistical analysis, it does not appear that significant propellant degradation is occurring. Based on the twelve years of accumulated data, there is no reason to suspect that properties will show much change for at least two years past the last data point. Therefore, propellant reliability should not change appreciably over that time period. Since failure limits are not available for the parameters tested, this statement is based on the fact that the slope of the regression curves where statistically significant are, with few exceptions, relatively flat or close to a line of zero slope and have not changed appreciably from the last test period.

*** SAMPLE SIZE SUMMARY ***

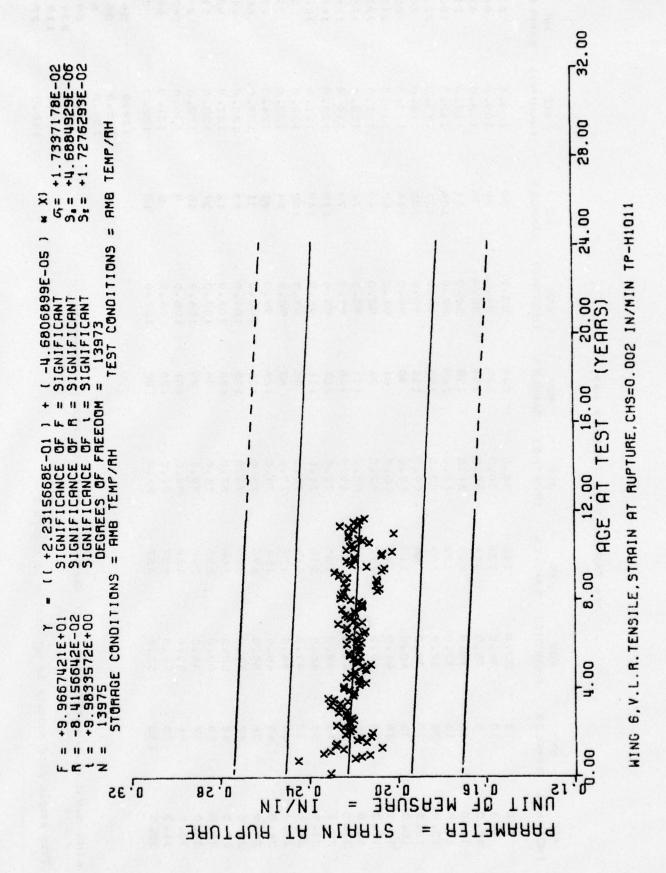
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9.0 10 34.0 149 59.0 287 84.0 26 109.0 110.0 11.0 15 35.0 107 66.0 242 86.0 62 111.0 111.0 15 35.0 141 66.0 242 86.0 62 111.0 10.0 111.0 15 35.0 141 66.0 242 86.0 62 111.0 112.0 11			1	33.0	134	58.0	325		09	108.0	6.3
110.0 5 35.0 107 60.0 382 85.0 30 110.0 12.0 15 35.0 107 60.0 242 86.0 62 111.0 12.0 15 37.0 141 62.0 242 86.0 104 112.0 12.0 30 38.0 117 63.0 216 88.0 121 113.0 15.0 35 40.0 119 65.0 66.0 61 91.0 62 114.0 15.0 25 41.0 153 66.0 61 91.0 62 114.0 15.0 25 42.0 120 65.0 24 92.0 144 115.0 15.0 25 43.0 142 68.0 165 94.0 114 115.0 15.0 25 43.0 142 68.0 165 94.0 178 118.0 10.1 37 44.0 136 77.0 165 94.0 78 118.0 22.0 12 47.0 148 77.0 151 96.0 149 121.0 22.0 12 47.0 148 77.0 15 99.0 81 124.0 22.0 24.0 151 74.0 125 99.0 81 124.0 22.0 24.0 256 77.0 138 100.0 31 124.0 23.0 44 52.0 256 77.0 136 102.0 12 127.0 23.0 61 55.0 468 80.0 101 05.0 53 126.0 23.0 61 55.0 468 80.0 101 05.0 53 130.0 23.0 61 55.0 468 80.0 101 105.0 53 130.0 23.0 78 78.0 78.0 78.0 78.0 78.0 78.0 24.0 76 77.0 78.0 78.0 78.0 78.0 25.0 77.0 78.0 78.0 78.0 78.0 25.0 78.0 78.0 78.0 78.0 78.0 25.0 77.0 78.0 78.0 78.0 27.0 78 78.0 78.0 78.0 28.0 77.0 78.0 78.0 29.0 77.0 78.0 78.0 20.0 77.0 78.0 78.0 20.0 78.0 78.0 78.0 20.0 78.0 78.0 20.0 78.0 78.0 78.0 20.0 78.0 20.0 78.0 20.0 78.0 20.0 78.0 20.0 78.0 20.0		0.6	10	34.0	149	99.0	287	84.0	56	109.0	96
12.0 15 16.0 242 86.0 62 1111.0 13.0 141 62.0 295 87.0 104 112.0 13.0 141 62.0 295 87.0 104 112.0 14.0 10 39.0 117 63.0 216 88.0 121 113.0 15.0 25 40.0 119 65.0 90 90.0 114 115.0 16.0 25 40.0 119 65.0 69.0 114 115.0 16.0 25 42.0 120 65.0 24 92.0 49 116.0 16.0 37 44.0 100 69.0 165 94.0 78 119.0 22.0 26 45.0 116 71.0 111 95.0 116 122.0 22.0 26 44.0 116 71.0 111 95.0 116 122.0 22.0 26 47.0 148 72.0 95 97.0 94 123.0 23.0 40 40 151 74.0 125 99.0 84 124.0 24.0 40 52.0 151 74.0 125 99.0 84 124.0 25.0 36 50.0 176 75.0 138 100.0 63 125.0 26.0 44 52.0 226 78.0 76.0 102.0 27.0 26.0 44 52.0 226 78.0 76.0 102.0 31.0 76 55.0 468 60.0 104.0 63 126.0 31.0 76 55.0 468 60.0 107.0 107.0 31.0 37.0 43.7 81.0 105.0 31.0 32.0 138 37.0 31.0 32.0 103.0 103.0 31.0 32.0 37.0 37.7 82.0 31.0 32.0 37.0 37.7 31.0 32.0 37.0 37.7 31.0 31.0 32.0 31.0 31.0 31.0 31.0		10.0	S	. 35.0	101	0.09	382	85.0	30	110.0	42
13.0 15 37.0 141 62.0 295 87.0 104 112.0 14.0 150 38.0 117 65.0 90 116 113.0 15.0 35 40.0 105 64.0 115 90.0 114 115.0 15.0 35 40.0 119 65.0 90 90.0 114 115.0 17.0 55 42.0 120 67.0 24 92.0 78 115.0 19.1 37 44.0 110 69.0 111 96.0 116 120.0 20.0 18 45.0 116 71.0 111 96.0 116 120.0 21.0 50 45.0 116 71.0 111 96.0 1149 121.0 22.0 18 45.0 116 71.0 111 96.0 1149 121.0 23.0 46 48.0 151 74.0 125 99.0 84 123.0 24.0 47 51.0 296 77.0 138 100.0 31 125.0 25.0 37 54.0 296 77.0 136 100.0 31 125.0 25.0 37 54.0 296 77.0 195 101.0 63 127.0 30.0 61 55.0 468 80.0 101 105.0 9 130.0 31.0 76 55.0 488 80.0 101 105.0 9 130.0 31.0 76 55.0 488 80.0 101 105.0 9 130.0 31.0 37 54.0 296 77.0 102 107.0 10 135.0 32.0 37 82.0 102.0 107.0 107.0 135.0 35.0 40.0 377 82.0 102.0 107.0 100.0 31.0 31.0 377 82.0 107.0 107.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 40.0 40.0 40.0 31.0 40.0 40.0 40.0 31.0 40.0 40.0		111.0	15	36.3	219	61.0	242	86.0	62	1111.0	12
13.0 13.0 117 63.0 216 88.0 121 113.0 114.0 114.0 114.0 115.0 15.0 15.0 15.0 115.0 114.0 115.0 15.0 15.0 115.0 115.0 115.0 115.0 115.0 115.0 115.0 115.0 115.0 116.0 116.0 117.0 25 42.0 120 65.0 90.0 110 117.0 117.0 125 43.0 14.2 66.0 61 92.0 78 118.0 117.0 110.0 15.0 117.0 11		12.0	15	37.0	141	62.0	295	87.0	104	112.0	100
14.0 10 39.0 105 64.0 115 89.0 1130 1114.0 116.0 16.0 15.0 15.0 15.0 16.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0 15		13.0	30	38.0	117	63.0	216	88.0	121	113.0	223
15.0 35 40.0 119 65.0 90 90.0 114 115.0 16.0 16.0 91.0 62 116.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17		14.0	10	39.0	1 05	64.0	115	89.0	130	114.0	60
16.0 25		15.0	35	40.0	119	65.0	06	0.06	114	115.0	65
17.0 55 42.0 120 67.0 24 92.0 49 117.0 118.0 118.0 118.0 119.0 19.0 19.0 19.0 19.0 19.0 19.0 1		16.0	25		153	0.99	19	91.0	62	116.0	243
142	-	17.0	55	42.0	120	67.0	54	92.0	64	117.9	223
22.0 50 46.0 100 69.0 165 94.0 78 119.1 22.0 20.3 95.0 116 120.0 22.0 22.0 12 44.0 116 71.0 121 95.0 116 120.0 22.0 22.0 12 47.0 116 71.0 117 95.0 102 122.0 22.0 12 47.0 128 72.0 95 97.0 102 122.0 22.0 24.0 49.0 138 72.0 95 99.0 84 123.0 22.0 35 99.0 84 123.0 22.0 35 99.0 84 123.0 22.0 32.0 17.0 100.0 31 125.0 22.0 29.0 101.0 63 126.0 22.0 29.0 102.0 12 122.0 29.0 102.0 12 122.0 29.0 102.0 102.0 12 122.0 29.0 102.0 102.0 12 122.0 29.0 102.0 102.0 12 122.0 29.0 102.0 102.0 12 122.0 29.0 102.0 102.0 12 122.0 29.0 102.0 102.0 12 122.0 29.0 102.0 102.0 12 122.0 29.0 102.0 102.0 102.0 12 122.0 29.0 102.0 102.0 102.0 12 122.0 29.0 102.0 102.0 102.0 102.0 122.0 122.0 29.0 102.0 102.0 102.0 102.0 122.0 29.0 102.0 102.0 102.0 102.0 133.0		18.0	25	43.0	142	68.0	101	93.0	78	118.0	125
22.0 18 45.0 135 70.0 203 95.0 116 120.0 22.0 22.0 120.0 149 121.0 122.0		19.3	37	44.0	100	69.0	165	0.46	78	119.0	126
116 71.0 111 96.0 149 121.0 148 72.0 95 97.0 102 122.0 122.0 138 73.0 62 99.0 84 123.0 124.0 151 75.0 138 100.0 31 125.0 125.0 176.0 105 101.0 63 125.0 125.0 256 78.0 76 103.0 37 128.0 226 79.0 99 104.0 45 129.0 437 81.0 102 105.0 9 130.0 437 82.0 101 105.0 9 130.0 135.0 140.0		20.0	18	45.0	135	70.0	2 03	0.36	116	120.0	168
148 72.0 95 97.0 102 122.0 138 73.0 62 98.0 84 123.0 151 74.0 125 99.0 81 124.0 176 75.0 138 100.0 31 125.0 296 77.0 130 102.0 12 125.0 226 78.0 76 103.0 37 128.0 226 79.0 99 104.0 45 129.0 437 81.0 101 105.0 9 130.0 377 82.0 102 107.0 10 135.0 136.0 136.0 1378 STRESS, CHS=C.002 IN/MIN TP-HI011 138.0 139.0		21.0	50		116	71.0	1111	0.96	149	121.0	102
138 73.0 62 98.0 84 123.0 151 74.0 125 99.0 81 124.0 176 75.0 138 100.0 31 125.0 296 77.0 130 102.0 12 127.0 226 78.0 76 103.0 37 128.0 226 79.0 99 104.0 45 129.0 437 81.0 101 105.0 9 130.0 377 82.0 101 105.0 5 131.0 135.0 135.0 135.0 135.0 135.0 135.0		22.0	12		148	72.0	96	97.0	102	122.0	0
151 74.0 125 99.0 81 124.0 176 75.0 138 100.0 31 125.0 296 77.0 105 101.0 63 126.0 296 77.0 130 102.0 12 127.0 256 79.0 99 104.0 45 129.0 437 81.0 125 106.0 5 131.0 437 82.0 102 107.0 10 135.0 135.0 MAX STRESS, CHS=C.002 IN/MIN TP-HI011 139.0	1	23.0	46	48.0	138	73.0	62	0.86	84	123.0	39
176 75.0 138 100.0 31 125.0 329 76.0 105 101.0 63 126.0 296 77.0 130 102.0 12 127.0 256 78.0 76 103.0 37 128.0 226 79.0 99 104.0 45 129.0 437 81.0 125 106.0 5 131.0 437 82.0 102 107.0 10 135.0 135.0 MAX STRESS, CHS=C.002 IN/MIN TP-HI011 139.0		24.0	64	49.0	151	74.0	125	0.66	81	124.0	2.2
329 76.0 105 101.0 63 126.0 296 77.0 130 102.0 12 127.0 256 78.0 76 103.0 37 128.0 226 79.0 99 104.0 45 129.7 437 81.0 105.0 9 130.0 437 82.0 102 105.0 10 132.0 377 82.0 102 107.0 10 135.0 135.0 135.0 135.0 139.0		25.0	36	50.0	176	75.0	138	100.0	31	125.0	99
296 77.0 130 102.0 12 127.0 256 78.0 76 103.0 37 128.0 226 79.0 99 104.0 45 129.0 458 80.0 101 105.0 9 130.0 437 81.0 125 106.0 5 131.0 377 82.0 102 107.0 10 135.0 135.0 135.0 136.0 139.0		26.0	47		329	76.0	105	101.0	63	126.0	44
256 78.0 76 103.0 37 128.0 226 79.0 99 104.0 45 129.0 468 80.0 101 105.0 9 130.0 437 81.0 125 106.0 5 131.0 377 82.0 102 107.0 10 132.0 135.0 MAX STRESS, CHS=0.002 IN/MIN TP-HI011 139.0		27.0	44		596	77.0	130	102.0	12	127.0	92
226 79.0 99 104.0 45 129.0 458 80.0 101 105.0 9 130.0 437 81.0 125 106.0 5 131.0 377 82.0 102 107.0 10 132.0 135.0 MAX STRFSS, CHS=0.002 IN/MIN TP-HI011 139.0		28.0	50	53.0	256	78.0	92	103.0	37	128.0	51
458 80.0 101 105.0 9 130.0 437 81.0 125 106.0 5 131.0 377 82.0 102 107.0 10 132.0 135.0 MAX STRESS, CHS=0.002 IN/MIN TP-HI011 138.0 139.0		29.0	37	54.0	226	79.0	66	104.0	45	129.0	24
437 81.0 125 106.0 5 131.0 377 82.0 102 107.0 10 132.0 134.0 135.0 135.0 135.0 136.0 136.0 136.0 136.0 135.0 135.0 135.0 139.0 139.0 140.0		30.0	19		468	80.0	101	105.0	6	130.0	142
377 R2.0 102 107.0 10 132.0 134.0 135.0 135.0 135.0 135.0 135.0 135.0 135.0 135.0 135.0 137.0 139.0 140.0		31.0	76	56.0	437	81.0	125	106.0	S	131.0	6.8
MAX STRF SS, CHS=0.002 IN/MIN TP-HI011 138.0 139.0 139.0	-	32.0	138	57.0	377	82.0	102		10	132.0	6)
135.0 136.0 136.0 137.0 138.0 139.0										134.0	54
136.0 MAX STRFSS.CHS=0.002 IN/MIN TP-HI011 137.0 139.0										135.0	24
MAX STRESS, CHS=0.002 IN/MIN TP-H1011 138.0 139.0 139.0										136.0	9
139.0 139.0	3		1 2421	4 44444	***	00 0-317 33		10.11		137.0	09
139.0	-	NING ONL	L. K. IFNS IL	C.SIRAIN A	Ydr	230 543-000				138.0	234
140 00										139.0	118
		The Area								140.0	- 27

This sample size summary is applicable to figures 1 thru 3



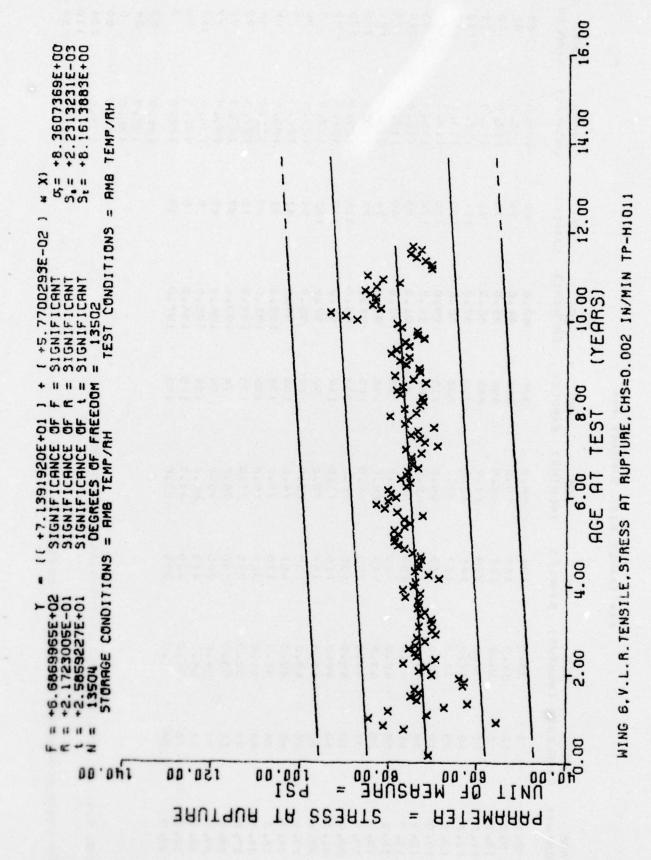


- 14 -



*** SAMPLE SIZE SUMMARY ***

AGE	3	N. S.		AGE	S S S S S S S S S S S S S S S S S S S	AGE	SA S	AGE	AN STAN
	SAMPLES	Marks	Ě	(SH. 4)	SAMPLES	CEL NOW)	SAMPLES	(SHINDE)	- Land C
1 33.0 122		122		58.0	546	83.0	09	108.0	63
10 34.0 133		133		29.0	220	84.0	56	109.0	96
5 35.0 104		104		90.09	294	82.0	30	110.0	42
15 36.0 209		503		61.0	198	86.0	19	1111.0	21
15 37.0 132		132		62.0	592	87.0	104	112.0	100
30 38.0 102		102		63.0	193	88.0	121	113.0	223
10 39.0 96		96		64.0	1111	89.0	130	114.0	20
35 40.0 113		113		65.0	06	0.06	114	115.0	69
41.0	••	146		0.99	19	91.0	62	116.0	243
42.0	0	112		67.0	24	92.0	64	117.0	223
43.0		120		68.0	101	93.0	78	118.0	125
		16		0.69	165	0. 46	78	119.0	126
18 45.0 135	0	135		2002	204	95.0	115	120.0	168
50 46.0 116	0	116		71.0	==	0.96	149	121.0	102
		148		72.0	95	97.0	102	122.0	6
48.0		138		73.0	62	0.86	84	123.0	39
		151		74.0	125	0.66	81	124.0	27
36 50.0 176		176		75.0	138	100.0	31	125.0	99
47 51.0 329	0	329		76.0	105	101.0	63	126.0	44
		596		77.0	130	102.0	12	127.0	26
50 53.0 256		556		78.0	26	103.0	37	128.0	51
54.0		226		20.67	66	104.0	45	129.0	27
61 55.0 468		468		90.0	101	105.0	6	130.0	142
70 56.0 437		437		91.0	125	106.0	S	131.0	68
133 57.0 367	••	367		82.0	102	107.0	10	132.0	2
								134.0	96
								135.0	24
								136.0	9
								137.0	69
5.V .L .R .TF NSILE . STRESS AT RUPTURE .C	A	Y	2	UPTURE . CHS = 0.002	INCHES THE PROPERTY OF THE PRO	-H1011		138.0	234
								139.0	118
sample size summary is applicable to floure &			7	4				140.0	27



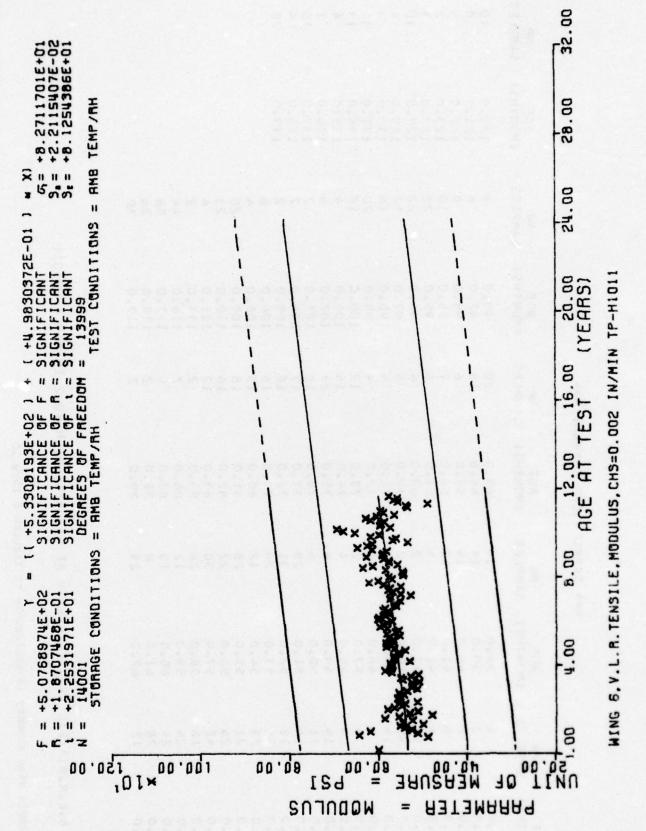
- 17 -

*** SAMPLE SIZE SUMMARY ***

S (MCNT HS) SAMPL 108.0 110.0 1110.0 1112.0 1113.0 1115.0 1115.0 1116.0 1116.0 1118.0 1118.0 118.0 121.0 121.0 122.0 122.0 122.0 122.0 123.0 124.0 125.0 126.0 126.0 127.0 128.0 138.0 138.0 138.0	SAMPLES (MUNTHS) SAMPLES (MCNTHS) SAMPLE 10	NR AGE	Y	460	X
134	2.0 10 34.0 148 59.0 10.0 10.0 34.0 107 66.0 10.0 10.0 35.0 107 66.0 11.0 15.0 35.0 107 66.0 112.0 15.0 35.0 141 62.0 144.0 16.0 32.0 10.0 117 65.0 16.0 16.0 25.0 41.0 118.0 15.0 25.0 42.0 119.0 65.0 110.0 69.0 22.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18	s	SAMPLES	(MONTHS)	SAMPLES
148 59.0 314 84.0 26 109.0 107 60.0 406 85.0 30 110.0 110.0 219 61.0 406 85.0 61 111.0 111.0 112.0 112.0 113.0 22 117 65.0 87 90.0 130 114.0 115.0 22 119 65.0 87 90.0 114.0 115.0 22 119 65.0 61 91.0 49 115.0 22 142 68.0 69.0 165 94.0 78 118.0 11 140 69.0 165 94.0 78 118.0 11 100 69.0 165 94.0 78 118.0 11 110 71.0 114 96.0 149 120.0 11 110 72.0 92 94.0 78 118.0 11 110 74.0 114	148 59.0 107 60.0 219 61.0 1117 63.0 1105 64.0 119 65.0 120 65.0 120 65.0 142 68.0 100 69.0 135 70.0 138 72.0 138 73.0 151 74.0 151 75.0 296 77.0 296 77.0 226 78.0 226 79.0 439 80.0 439 81.0 375 82.0	83	60		63
107 60.0 406 85.0 30 110.0 219 61.0 245 96.0 61 111.0 114 62.0 230 87.0 104 112.0 117 63.0 232 88.0 120 113.0 118 65.0 87 90.0 114 115.0 119 66.0 61 91.0 62 116.0 119 66.0 61 91.0 62 116.0 110 69.0 165 94.0 78 118.0 110 69.0 165 94.0 78 118.0 110 71.0 114 96.0 115 120.0 111 73.0 62 98.0 84 121.0 112 73.0 62 98.0 84 123.0 113 73.0 62 98.0 84 123.0 115 74.0 125 99.0 81 124.0 116 71.0 118 100.0 63 126.0 117 73.0 100 63 126.0 118 73.0 74 103.0 63 126.0 119 71.0 104.0 64 132.0 119 72.0 74 103.0 5 137.0 119 72.0 74 106.0 5 137.0 119 72.0 74 106.0 63 137.0 119 72.0 74 106.0 64 137.0 119 72.0 74 107.0 10 119 72.0 74 107.0 10 119 72.0 74 107.0 10 119 72.0 74 107.0 10 119 72.0 74 107.0 10 119 72.0 74 75.0 106.0 119 75.0 75.0 75.0 106.0 119 75.0 75.0 75.0 110 75.0 75.0 110 75.0 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110 75.0 75.0 110	107 66.0 219 61.0 141 62.0 1153 66.0 120 67.0 142 68.0 100 69.0 135 70.0 138 72.0 148 72.0 151 74.0 151 75.0 256 77.0 256 77.0 257 77.0 257 77.0 258 77.0 258 77.0 259 77.0 250 7		56	109.0	96
219	219		30	110.0	42
141 62.0 300 87.0 104 112.0 113.7 25 117 63.0 232 88.0 120 113.7 2 1165 65.0 87 90.0 114 115.0 2 119 65.0 61 91.0 62 116.0 2 120 67.0 23 92.0 49 117.0 2 120 67.0 23 92.0 49 117.0 2 142 68.0 165 94.0 78 118.0 1 140 66.0 114 96.0 149 121.0 2 116 71.0 114 96.0 149 121.0 1 116 72.0 203 95.0 149 121.0 1 118 72.0 92 97.0 102 122.0 1 118 74.0 125 98.0 84 123.0 1	141 62.0 105 64.0 119 65.0 120 65.0 142 68.0 142 68.0 142 68.0 135 70.0 135 70.0 138 73.0 151 74.0 151 74.0 151 75.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 296 78.0 296 78.0 296 77.0 296 78.0 296 78.0 297 78.0 297 78.0 298 88.0 298 88.0		61	1111.9	21
117 63.0 232 88.0 1120 113.0 2 114.0 2 115.0 2	117 53.0 105 64.0 119 65.0 120 65.0 142 68.0 100 69.0 135 70.0 135 70.0 138 73.0 151 74.0 151 74.0 151 75.0 296 77.0 296 78.0 296 77.0 296 77.0 297 77.0 298 77		104	112.0	100
105 64.0 115 89.0 130 114.3 119 65.0 87 90.0 114 115.0 15.3 66.0 61 91.0 62 116.0 2 120 65.0 7.0 23 99.0 78 118.2 110.0 135 70.0 203 95.0 115 120.0 136 71.0 114 96.0 149 121.0 138 73.0 62 98.0 84 123.0 138 73.0 62 98.0 84 123.0 138 73.0 62 98.0 84 123.0 139 75.0 100.0 31 126.0 151 74.0 125 99.0 81 124.0 151 75.0 136 100.0 31 125.0 256 77.0 130 102.0 12 256 77.0 101 105.0 9 137.0 101 105.0 9 137.0 138.0 139.0 139.0 135.0 138.0 138.0 135.0 138.0 138.0 135.0 139.0 104.0 45 129.0 135.0 137.0 138.0 135.0 137.0 138.0 138.0	105 64.0 119 65.0 120 65.0 142 68.0 100 69.0 135 70.0 116 71.0 118 72.0 138 72.0 151 74.0 151 74.0 151 75.0 296 77.0 296 77.0 296 77.0 296 77.0 296 78.0 296 78.0 297 78.0 298 81.0 298 81.0		120	113.0	223
119 65.0 87 90.0 114 115.0 2 153 66.0 £1 91.0 62 116.0 2 120 65.0 £3 92.0 49 117.0 2 142 68.0 165 94.0 78 118.0 11 100 69.0 165 94.0 78 119.0 11 116 71.0 114 96.0 149 121.0 11 116 72.0 92 97.0 149 121.0 11 148 72.0 92 98.0 84 123.0 124.0 138 73.0 62 98.0 84 123.0 124.0 151 74.0 125 190.0 81 124.0 125.0 176 138 100.0 31 126.0 126.0 126.0 126.0 126.0 126.0 126.0 126.0 126.0 126.0 126.0 1	119 65.0 153 66.0 142 68.0 100 69.0 135 70.0 116 71.0 118 72.0 138 73.0 151 74.0 151 74.0 151 75.0 296 77.0 296 77.0 296 78.0 296 78.0 296 78.0 296 78.0 296 78.0 296 78.0 296 78.0 296 78.0 296 78.0 296 78.0 297 78.0 298 77.0 298 77		130	114.9	7.0
153 66.0	153 66.0 120 67.0 100 69.0 135 70.0 116 71.0 148 72.0 138 73.0 151 74.0 151 74.0 151 75.0 296 77.0 296 77.0 296 78.0 296 78.0 297 78.0 298 77.0 298 77		114	115.0	65
120 67.0 23 92.0 49 117.7 2 142 68.0 56 93.0 78 118.0 11 100 69.0 165 94.0 78 118.0 11 135 70.0 203 95.0 115 120.0 1 136 72.0 92 97.0 102 122.0 138 73.0 62 98.0 81 122.0 151 74.0 125 99.0 81 125.0 155 75.0 138 100.0 31 125.0 256 77.0 130 102.0 12 125.0 256 78.0 74 103.0 63 125.0 256 78.0 74 103.0 45 129.0 458 80.0 101 105.0 9 131.0 375 82.0 102.0 10 132.0 135.0 137.0 138.0 256 78.0 74 103.0 5 131.0 257 79.0 99 104.0 45 129.0 258 78.0 101 105.0 9 133.0 259 1101 105.0 9 133.0 250 79.0 102.0 104.0 63 133.0 250 79.0 102.0 104.0 63 133.0 250 79.0 102.0 104.0 63 133.0 250 77.0 100 105.0 9 133.0 250 77.0 100 105.0 9 133.0	120 67.0 142 68.0 100 69.0 135 70.0 148 72.0 151 74.0 151 74.0 176 75.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 296 78.0 296 79.0 468 80.0 419 82.0		62	116.0	243
142 68.0 93.0 78 118.0 11 100 69.0 165 94.0 78 119.0 11 135 70.0 203 95.0 115 120.0 11 116 71.0 114 96.0 149 121.0 11 116 72.0 92 97.0 102 122.0 11 138 73.0 62 98.0 84 123.0 124.0 151 74.0 125 99.0 81 124.0 176 75.0 138 100.0 31 125.0 256 76.0 136 101.0 63 126.0 256 77.0 130 102.0 37 125.0 256 77.0 130 104.0 45 127.0 256 77.0 101 106.0 5 131.0 439 81.0 102 107.0 10 135.0 375 82.0 102 107.0 10 136.0 136.0 102 107.0 10 136.0 136.0 136.0 102 107.0 10 10 136.0 137.0	142 68.0 135 70.0 116 72.0 148 72.0 138 73.0 151 74.0 176 75.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 296 79.0 408 80.0 419 81.0		64	117.9	223
100 69.0 165 94.0 78 119.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	100 69.0 135 70.0 148 72.0 138 73.0 151 74.0 176 75.0 226 77.0 226 77.0 226 79.0 468 80.0 41.0 375 82.0		78	118.0	125
135 7C.0 203 95.0 115 120.0 1 116 71.0 114 96.0 149 121.0 148 72.0 92 97.0 102 122.0 138 73.0 62 98.0 84 1-23.0 151 74.0 125 99.0 81 124.0 176 75.0 138 100.0 31 125.0 296 77.0 130 102.0 12 127.0 296 77.0 130 102.0 12 128.0 459 80.0 101 105.0 9 130.0 458 82.0 102 107.0 10 133.0 136.0 136.0 136.0 138.0 2 131.0 137.0 138.0 2 131.0 138.0 138.0 138.0	135 70.0 148 72.0 138 73.0 151 74.0 176 75.0 226 77.0 226 77.0 226 79.0 468 80.0 439 81.0 375 82.0		78	119.0	126
116 71.0 114 96.0 149 121.0 148 72.0 92 97.0 102 122.0 138 73.0 62 98.0 84 123.0 151 74.0 125 99.0 81 124.0 176 75.0 138 100.0 31 125.0 296 77.0 136 101.0 63 126.0 296 77.0 130 102.0 37 128.0 256 78.0 74 103.0 37 128.0 256 79.0 99 104.0 45 129.0 468 80.0 101 105.0 9 130.0 439 81.0 102 106.0 5 131.0 375 82.0 102 107.0 10 132.0 136.0 136.0 136.0 136.0 136.0 136.0 138.0 138.0 139.0 139.0 139.0 1	116 71.0 148 72.0 138 73.0 151 74.0 176 75.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 296 77.0 379 82.0		115	120.0	150
148 72.0 92 97.0 102 122.0 138 73.0 62 98.0 84 123.0 151 74.0 125 99.0 81 124.0 176 75.0 138 100.0 31 124.0 296 77.0 130 102.0 31 125.0 296 77.0 130 102.0 12 127.0 256 78.0 74 103.0 37 128.0 226 79.0 99 104.0 45 129.0 439 81.0 101 105.0 9 131.0 439 81.0 102 107.0 10 132.0 135.0 136.0 136.0 135.0 135.0 135.0 135.0 136.0 107.0 107.0 107.0 136.0 136.0 135.0 136.0 136.0 136.0 136.0 136.0 136.0 136.0 137.0 136.0 138.0 137.0 138.0 139.0 139.0 139.0	148 72.0 138 73.0 151 74.0 176 75.0 296 77.0 256 78.0 226 79.0 468 80.0 439 81.0 375 82.0		149	121.0	87
138 73.0 62 98.0 84 123.0 151 74.0 125 99.0 81 124.0 176 75.0 138 100.0 31 125.0 296 77.0 130 102.0 12 127.0 296 77.0 130 102.0 12 127.0 226 79.0 99 104.0 45 129.0 458 80.0 101 105.0 9 131.0 439 81.0 125 106.0 5 131.0 136.0 136.0 136.0 138.0	138 73.0 151 74.0 176 75.0 296 77.0 256 78.0 226 79.0 468 80.0 439 81.0 375 82.0		102	122.0	6
151 74.0 125 99.0 81 124.0 176 75.0 138 100.0 31 125.0 296 77.0 130 102.0 12 127.0 296 77.0 130 102.0 12 127.0 226 78.0 74 103.0 37 128.1 226 79.0 99 104.0 45 129.0 459 80.0 101 105.0 9 130.0 439 81.0 125 106.0 5 131.0 375 82.0 102 107.0 10 132.0 136.0 136.0 138.0	151 74.0 176 75.0 296 77.0 256 78.0 226 79.0 468 80.0 439 81.0 375 82.0		84	1-123.9	96
176 75.0 138 100.0 31 125.7 329 76.0 105 101.0 63 126.0 296 77.0 130 102.0 12 127.0 256 78.0 74 103.0 37 128.0 226 79.0 99 104.0 45 129.0 459 80.0 101 105.0 9 130.0 439 81.0 125 106.0 5 131.0 375 82.0 102 107.0 10 135.0 136.0 136.0 136.0 136.0 136.0 138.0 139.0 139.0	176 75.0 329 76.0 296 77.0 256 78.0 226 79.0 439 80.0 439 81.0 375 82.0		81	124.0	27
329 76.0 105 101.0 63 126.0 296 77.0 130 102.0 12 127.0 226 78.0 74 103.0 37 128.1 226 79.0 99 104.0 45 129.0 468 80.0 101 105.0 9 130.0 375 82.0 102 107.0 10 132.0 135.0 135.0 136.0 137.0	329 76.0 296 77.0 256 78.0 226 79.0 468 80.0 439 81.0 375 82.0		31	125.0	96
296 77.0 130 102.0 12 127.0 256 78.0 74 103.0 37 128.1 226 79.0 99 104.0 45 129.0 468 80.0 101 105.0 9 130.0 439 81.0 125 106.0 5 131.0 375 82.0 102 107.0 10 132.0 135.0 135.0 136.0 138.0	256 77.0 1 256 78.0 226 79.0 468 80.0 1 439 81.0 1 375 82.0 1	-	63	156.0	44
256 78.0 74 103.0 37 128.1 226 79.0 99 104.0 45 129.9 468 80.0 101 105.0 9 130.0 439 81.0 125 106.0 5 131.0 375 82.0 102 107.0 10 132.9 135.0 135.0 136.0 138.0 138.0	256 78.0 226 79.0 468 80.0 439 81.0 375 82.0	-	12	127.0	92
226 79.0 99 104.0 45 129.0 468 80.0 101 105.0 9 130.0 439 81.0 125 106.0 5 131.0 375 82.0 102 107.0 10 132.0 135.0 135.0 135.0 135.0 136.0 137.0	226 79.0 468 80.0 439 81.0 375 82.0 1 =0.002 IN/MIN TP-HI011	-	37	128.3	51
468 80°C 101 105°0 9 130°.0 439 81°0 125 106°0 5 131°.0 375 82°C 102 107°O 10 132°.0 136°C 135°.0 136°C 135°.0 136°C 137°.0 138°.0 138°.0	468 80.0 1 439 81.0 1 375 82.0 1	1	45	129.0	27
439 81.0 125 106.0 5 131.0 375 82.0 102 107.0 10 132.9 136.0 135.0 136.0 138.0	439 81.0 1 375 82.0 1	-	6	130.0	142
375 82.0 102 107.0 10 132.9 134.0 135.0 136.0 137.0 138.0 139.0	375 82.0 1 =0.002 IN/MIN TP-H1011	106	2	131.0	68
134.0 135.0 136.0 136.0 138.0 139.0	=0.005	107	10	132.9	£
135.0 136.0 137.0 137.0 138.0	=0.005			134.0	53
=0.002 IN/MIN TP-HI011 138.0 139.0	=0.005			135.0	24
=0.002 IN/MIN TP-HI011 138.0	=0.002			136.0	9
=0.002 IN/MIN TP-HI011 138.7	=0.005			137.5	09
	- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			138.0	234
				139.9	118

WING 6.V.L.R. TENSILE, MODULUS, CHS=0.002 IN/MIN TP-HI011

This sample size summary is applicable to figure 5

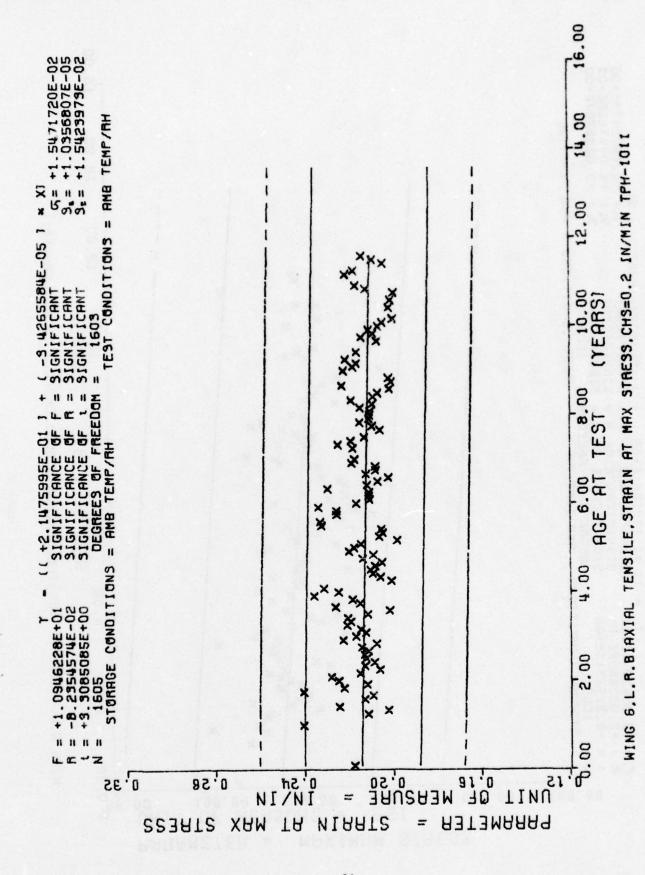


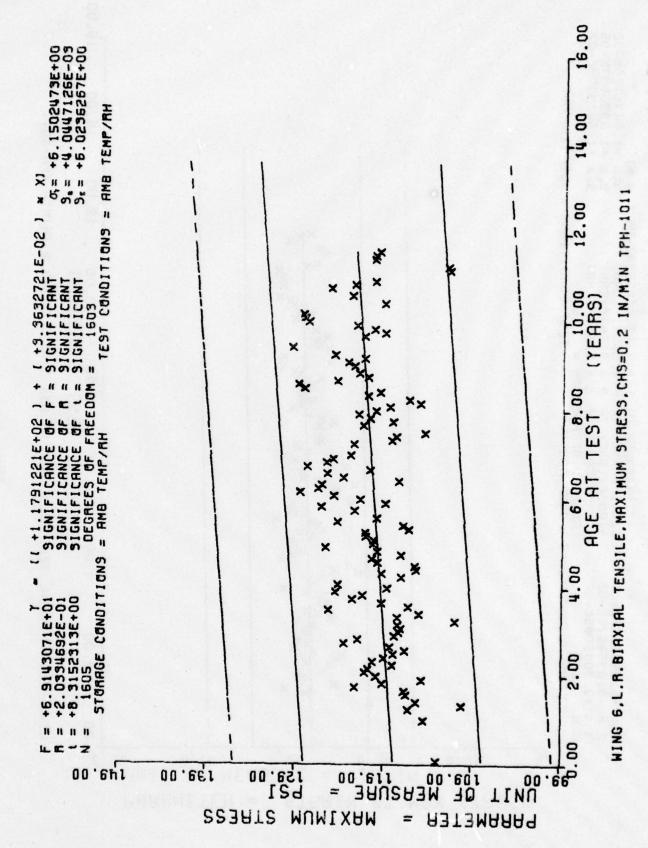
*** SAMPLE SIZE SUMMARY ***

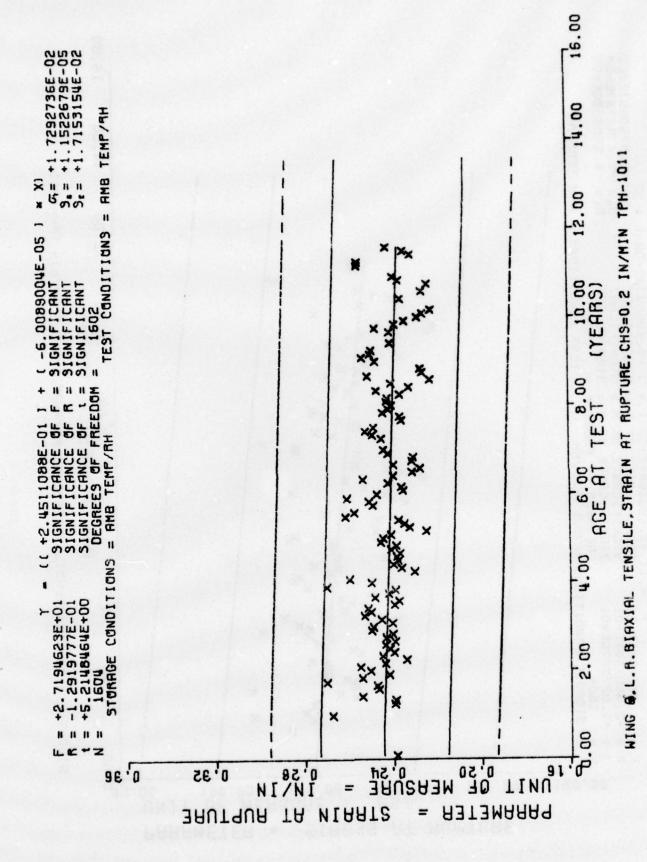
AGE NR AGE (MONTHS) SAMPLES							127.0 10			131.0 36															
NR		9	9	8	18	22	20	12	91	20	10	4	9	2	2	2	9	4	20	23	4	2	44	58	56
AGE (MONTHS)							0.96		98.0		100.0	101.0	102.0	103.0	104.0	105.0	106.0	108.0	109.0	110.0	111.0	113.0	116.0	117.0	118.0
NR SAMPLES		28	91	9	7	9	4	9	4	4	12	16	23	10	17	18	91	15	18	16	12	2	2	4	2
AGE		63.0	0.49	0.59	0.99	67.0	0.69	70.0	71.0	72.0	73.0	74.0	75.0	76.0	17.0	78.0	19.0	80.0	81.0	82.0	83.0	84.0	85.0	87.0	88.0
NR A M D I	SAMELE S	10	14	14	12	9	2	2	4	9	2	4	4	9	28	31	54	12	88	22	30	56	12	18	8
AGF	1 Sultania	38.0	39.0	40.0	41.0	45.0	43.0	44.0	45.0	46.0		48.0		50.0					55.0	56.0	57.0	58.0		0.09	
N N N N N N N N N N N N N N N N N N N	SAMPLES	1	2	2	9	9	12	10	14	9	9	6	14	11	16	18	56	23	22	56	7.5	18	26	24	28
AGE	1 Carl Nilles	1.0		13.0		16.9	17.0	13.0		21.0	22.0			25.0	25.0	27.0		29.0	30.0	31.0	32.0	33.0			36.0

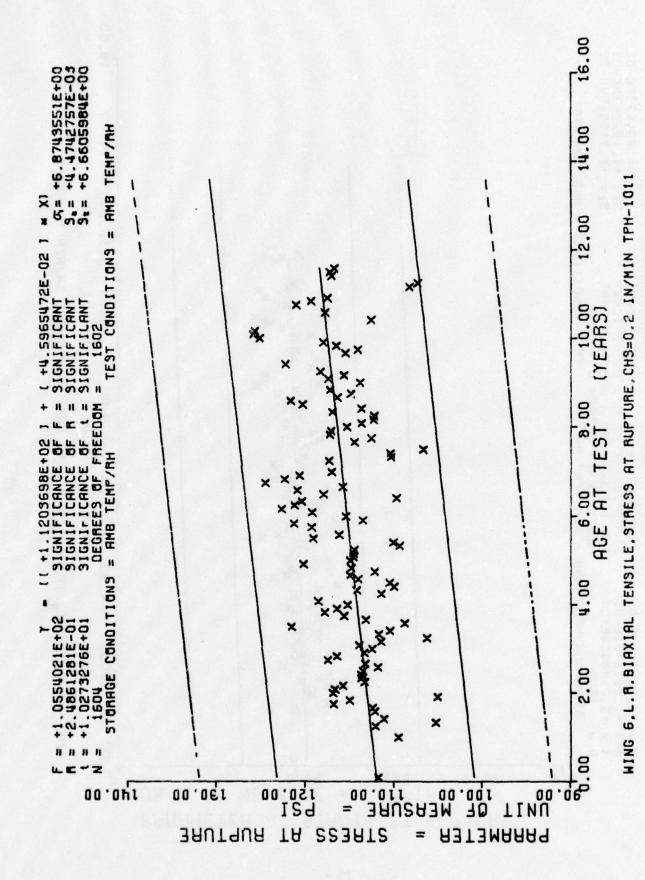
WING 6, L.R. BIAXIAL TENSILE, STRAIN AT MAK STRESS, CHS=0.2 IN/MIN TPH-1011

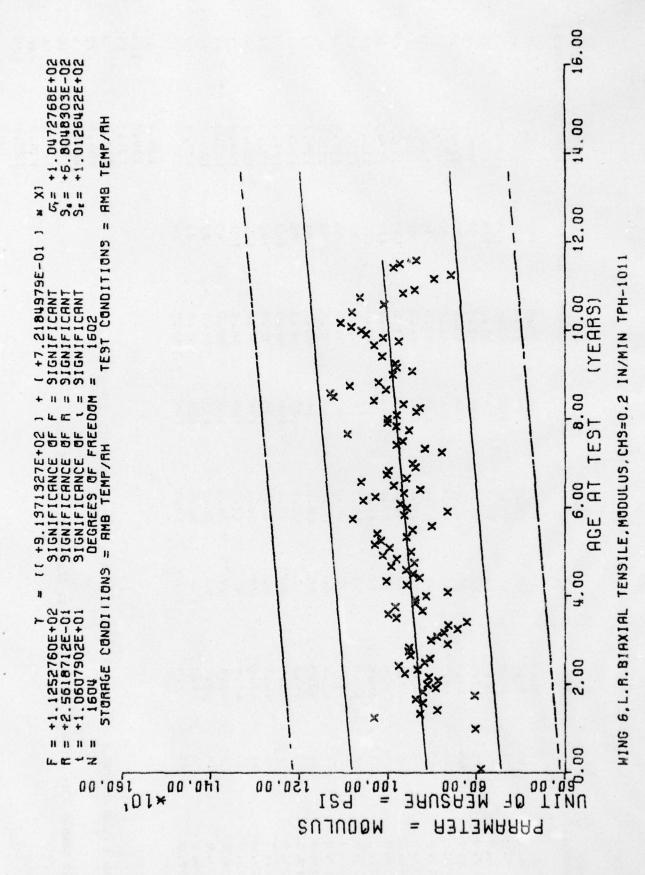
This sample size summary is applicable to figures 6 thry 10





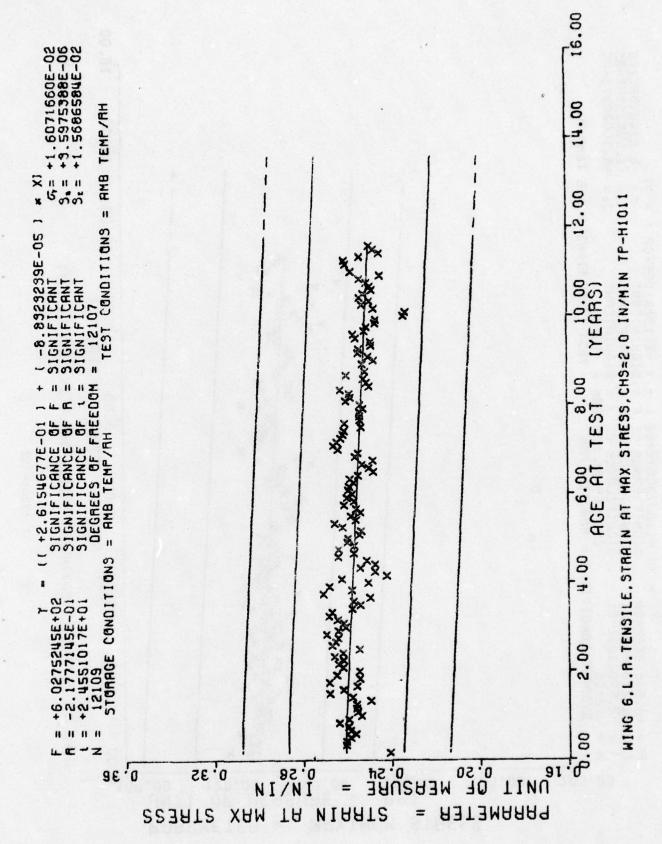


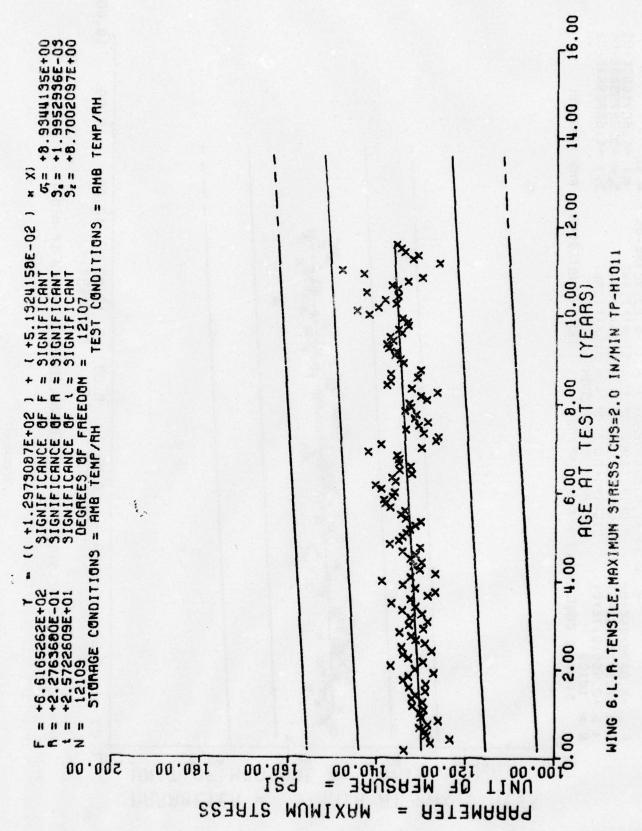


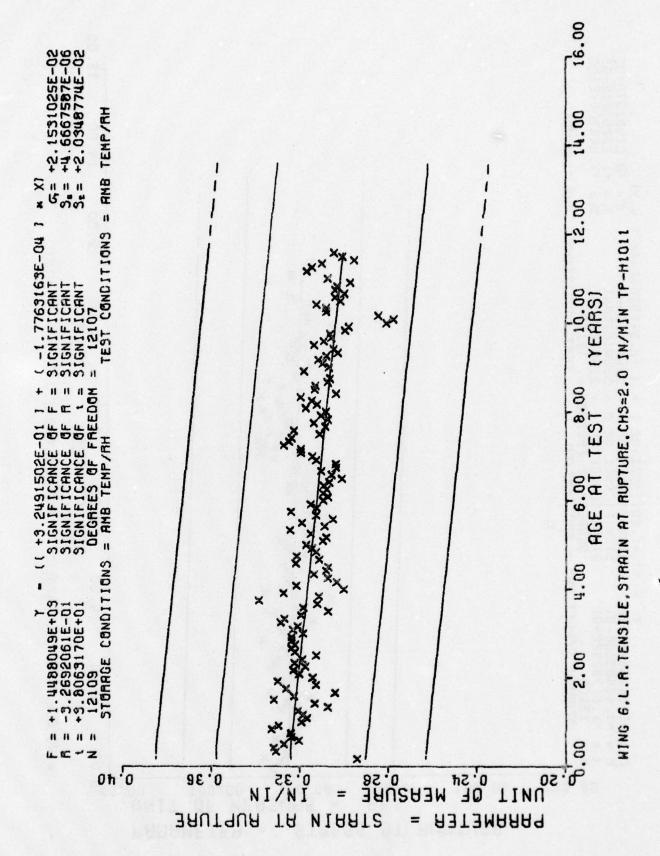


*** SAMPLE SIZE SUPMALY ***

7.0 151 152.0 152.0 152 152.0 152 152.0 152 152.0	AGE.	NR 15) SAMPLES	ACE (MONTHS)	SAMPLES	(MCK THE)	SAUPLES	(MCNTHS)	SAMPLES	AGENT HS)	SAMPLES
19	5		28.0	2.0		76	78.0	162	. 0	36
151 30.0 40 55.0 147 90.0 114 131.0 151 32.0 11.2 57.0 149 81.0 57 104.0 151 32.0 11.2 57.0 149 81.0 57 104.0 152 33.0 85.0 140 82.0 83.0 79 110.0 152 34.0 75.0 74.0 150 85.0 110.0 152 34.0 72 54.0 59.0 59.0 114.0 153 41.0 59.0 59.0 59.0 114.0 154 42.0 72 66.0 72 66.0 114.0 154 42.0 72 66.0 72 66.0 114.0 155 44.0 75 66.0 70 60 111.0 156 44.0 75 66.0 70 60 111.0 157 44.0 75 66.0 70 60 111.0 158 44.0 75 66.0 70 60 111.0 159 44.0 75 66.0 70 70 70 150 30 44.0 70 72 70 70 70 150 30 44.0 70 70 70 70 150 30 44.0 70 70 70 150 30 44.0 70 70 70 150 30 44.0 70 70 70 150 30 44.0 70 70 70 150 30 40.0 70 70 70 150 30 70 70 70 70 150 70 70 70 70 150 70 70 70 150 70 70 70 70 150 70 70 70 150 70 70 70 150 70 70 70 150 70 70 70 150 70 70 70 150 70 70 70 150 70 70 70 150 70 70 150 70 70 70 150 70 70 150 70 70 150 70 70 150 70 70 150 70 70 150 70 70 70 150 70 70	*			23	54.0	77	70.07	198	7.0	45
161 31.0 52 57.0 146 83.0 115 197.0 171 33.0 62 57.0 146 82.0 57 197.0 182 34.0 62 62.0 162 36.0 79 111.0 182 34.0 75 57.0 162 36.0 36 111.0 182 34.0 77 62.0 165 86.0 36 111.0 183 37.0 77 62.0 165 86.0 36 113.0 184 37.0 77 62.0 165 86.0 36 113.0 185 37.0 47.0 77 62.0 60 116.0 185 44.0 72 64.0 66 67 117.0 186 44.0 75 62.0 67 67 67 186 44.0 75 62.0 77 77.0 101 127.0 186 44.0 77 77.0 170 170 170 186 44.0 77 77.0 170 77 77.0 186 44.0 77 77.0 170 77 170.0 187 36.0 40 77 77.0 170 77 170.0 187 37 57.0 170 77 77.0 170 170 187 37 57.0 170 170 170 187 37 37 37 37 187 37 37 37 37 187 37 37 37 37 187 37 37 37 37 187 37 37 37 187 37 37 37 187 37 37 37 187 37 37 187 37 37 187 37 37 187 37 37 187 37 37 187 37 37 187 37 37 187 37 37 187 37 37 187 37 37 187 37 187 37 37 187 37				5.7	0.63	1.37	80.0	114	95.	0
171 32.0 112 57.0 145 582.0 57 103.0 183 184.0 185 56.0 185 683.0 57 103.0 183 184.0 185 185.0 185 85.0 38 111.0 184.0 185 25.0 143 115.0 185 25.0 143 115.0 125 135 115.0 185 25.0 145 125 125 125 185 25.0 25 65.0 244 388.0 114 114.0 185 25.0 25 65.0 254 388.0 114 114.0 185 25.0 25 65.0 25 25 25 115.0 185 25.0 25 65.0 25 25 25 25 185 25.0 25 25.0 25 25 25 185 25.0 25 25.0 25 25.0 185 25.0 25 25.0 25 25.0 185 25.0 25 25.0 25 25.0 185 25.0 25 25.0 25 25.0 185 25.0 25 25.0 25 185 25.0 25 25.0 25 185 25.0 25 25.0 185 25.0 25 25.0 185 25.0 25 25.0 185 25.0 25 25.0 185 25.0 25 25.0 185 25.0 25 25.0 185 25.0 25 25.0 185 25.0 25 185 25.0 25 25.0 185 25.0 25 25 25 25 25 25 25	6.			52	96.6	16	81.0	118	7.	15
140 33.6 86 55.0 136 83.0 79 103.0 15. 15. 35.0 41 66.0 162 34.0 79 113.0 16. 15. 35.0 41 66.0 150 36.0 111.0 16. 20.0 37.0 77 62.0 165 87.0 38 112.0 10. 10. 37.0 77 62.0 244 98.0 114 114.0 10. 20.1 36.0 50.0 244 98.0 114 114.0 10. 20.1 36.0 50.0 50.0 60.0 115.0 10. 20.1 36.0 50.0 50.0 50.0 117.0 10. 42.0 66.0 50.0 50.0 50.0 10. 42.0 66.0 50.0 50.0 10. 44.0 50.0 50.0 50.0 10. 44.0 50.0 50.0 50.0 10. 44.0 50.0 50.0 10. 44.0 50.0 50.0 10. 44.0 50.0 50.0 10. 56 51.0 134 76.0 125 101.0 10. 56 51.0 134 76.0 125 101.0 10. 56 51.0 134 76.0 125 101.0 10. 52.0 134 76.0 175 101.0 10. 134.0 10. 52.0 134 76.0 175.0 10. 134.0 10. 134.0 134 76.0 175.0 10. 134.0 10. 134.0 134 77.0 10. 134.0 10.	7.			112	67.0	145	82.0	57		99
1 1 1 1 1 1 1 1 1 1	20			8.5	55.0	134	83.0	79	03.	00
1872 1873 1874 1875	0	-		7.5	60.0	102	34.0	30	10:	
1 \(\text{A} \) 1 \(\text{C} \) 2 \(\text{C} \) 1 \(10.			4.1	0.06	108	95.0	30	111.0	2.1
196 196 37.0 77 62.0 185 87.0 135 113.0 196 244 98.0 114 114.0 114.0 115.0 201 36 62.0 244 98.0 114 115.0 115.0 201 36 62.0 201 39.0 201 115.0 1	:	-		145	61.6	150	86.0	38	:	25
195 JB.0 36 63.0 244 8B.0 114 114.0 114.0 114.0 114.0 114.0 115.0 114.0 114.0 114.0 114.0 114.0 114.0 114.0 114.0 114.0 114.0 115.0	12.			1.1	62.0	1.85	87.0	135	2	19
0 201 39.0 89.0 107 115.0 0 178 64.0 59 64.0 15.0 16.0 115.0 16.0 115.0 16.0 16.0 40.0 60 115.0 20 20 115.0 20 115.0 20 20 20 20	13.			36	63.0	244	98.0	114	4.	38
150 150 40.0 59 65.0 55 115.0 50 15	14.			7.2	64.0	89	89.0	107	5	116
20 20 41.0 22 66.0 40 91.0 55 117.0 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15.			69	0.33	a.	0.06	09	116.0	746
160 42.0 6c 67.0 56 92.0 53 118.0 17.0 160 42.0 64 119.0 17.0 18.0 18.0 17.0 18.0 17.0 18.0 17.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18	16.		41	32	0.39	0.40	91.0	55	117.0	212
10 18 43.0 75 68.0 50.0 61 119.0 119	17.			ÇC	67.0	35	92.0	53	118.0	143
95 44.0 15 65.0 70 94.0 95 120.0 20 10 16 45.0 20 70.0 120 95.0 103 121.0 20 10 60 40.0 77 72.0 119 97.0 101 122.0 20 10 65 49.0 77 74.0 154 99.0 65 125.0 124.0 24.0 10 65 49.0 77 74.0 154 99.0 65 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 125.0 135.0	18.			75	0.39	30	93.0	61	119.0	1117
.0 16 45.0 20 75.0 120 95.0 103 121.0 .0 50 40.0 55 71.6 75 96.0 148 122.0 .0 31 47.0 70 72.0 119 97.0 101 123.0 .0 36 49.0 77 74.0 126 98.0 101 124.0 .0 56 50.0 93 75.0 125 99.0 65 125.0 125.0 .0 56 51.0 154 76.0 125 100.0 27 125.0 125.0 .0 53 52.0 196 77.0 145 100.0 130.0 130.0 6.L.R.TEASILE, STRAIN AT MAX STRESS, CHS=2.0 IN/MIN TP-H1011 130.0 134.0 135.0 sample size summary is applicable to figures 11 thru 15 135.0 135.0 139.0 139.0 139.0 1399.0	19.			15	0.59	70	0.46	95	120.0	204
.0 60 40.0 65 71.0 75 90.0 148 122.0 70 72.0 119 97.0 101 123.0 70 72.0 119 97.0 101 123.0 70 72.0 119 97.0 101 123.0 70 72.0 119 97.0 101 124.0 70 72.0 120 99.0 65 125.0 70 70 70 101 124.0 70 70 70 70 70 70 70 70 70 70 70 70 70	20.			20	70.07	120	95.0	103	121.0	60
0 31 47.9 70 72.0 119 97.0 101 123.0 98.0 9.0 65 124.0 98.0 101 124.0 98.0 101 124.0 98.0 101 124.0 9.0 65 125.0 9.0 65 125.0 9.0 65 125.0 9.0 65 125.0 9.0 65 125.0 9.0 65 125.0 9.0 9.3 75.0 175 100.0 27 125.0 9.0 9.0 53 52.0 196 77.0 145 100.0 77 123.0 130.0 131.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	21.	-		5.5	71.0	75	36.0	148	5.	24
30 48.0 40 72.0 120 98.0 101 124.0 6.5 125.0 6	22.			. 70	72.0	119		101	123.0	30
10 65 49.0 77 74.0 154 99.0 65 125.0 27 125.0 29 3 75.0 175 100.0 27 125.0 27 125.0 29 125.0	23.			0.4	73.0	120	98.0	101	124.0	21
0 30 50.0 93 75.0 175 100.0 27 125.0 125.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	24.			77	74.0	154	0.66	65	125.0	42
.0 56 51.0 154 76.0 125 101.0 73 127.0 2 .0 53 52.0 196 77.6 145 102.0 10 123.0	25.			93	75.0	175	100.0	27	125.0	72
53 52.0 19c 77.0 145 192.0 10 123.0 129.0 129.0 130.0 130.0 131.0 131.0 131.0 131.0 131.0 131.0 131.0 131.0 132.0 131.0 132.0 1335.0 1350.0 1350.0 1350.0 1350.0 137.0 2 138.0 2 139.0 139.0 139.0	26.			154	76.0	125	101.0	73	127.0	25
6.L.R.IFASILE.STRAIN AT MAX STRESS.CHS=2.6 IN/WIN TP-HI011 131.0 132.0 135.0 135.0 135.0 135.0 135.0 135.0	27.		55	361	77.6.	1.45		10	123.0	5.3
130.0 131.0 151.0 151.0 152.0 152.0 155.0 155.0 155.0 155.0 155.0 155.0 155.0 155.0 155.0 155.0									129.0	33
131.0 6 6.L.R.IFASILE.STRAIN AT MAX STRESS.CHS=2.0 IN/WIN TP-H1011 134.0 7 135.0 135.0 135.0 135.0 135.0 137.0 5 138.0 24						The second secon			130.0	126
6.L.R.TFNSILE.STRAIN AT MAX STRESS.CHS=2.0 IN/MIN TP-HI011 134.0 7 135.0 135.0 135.0 135.0 137.0 524 137.0 524 137.0									131.0	19
sample size summary is applicable to figures 11 thru 15 138.0 138.0 138.0									132.0	3
sample size summary is applicable to figures 11 thru 15 137.0 138.0		DOL OK . ITNS					1101		134.0	72
sample size summary is applicable to figures 11 thru 15 137.0 138.0 139.0									135.0	3
137.0	This	ample size s	ummary is applie		11 + 12.	75			136.0	15
39.0		a and and	and or frame		דד רוודת	3	A STATE OF THE STA		137.0	54
39.0									138.0	246
										123







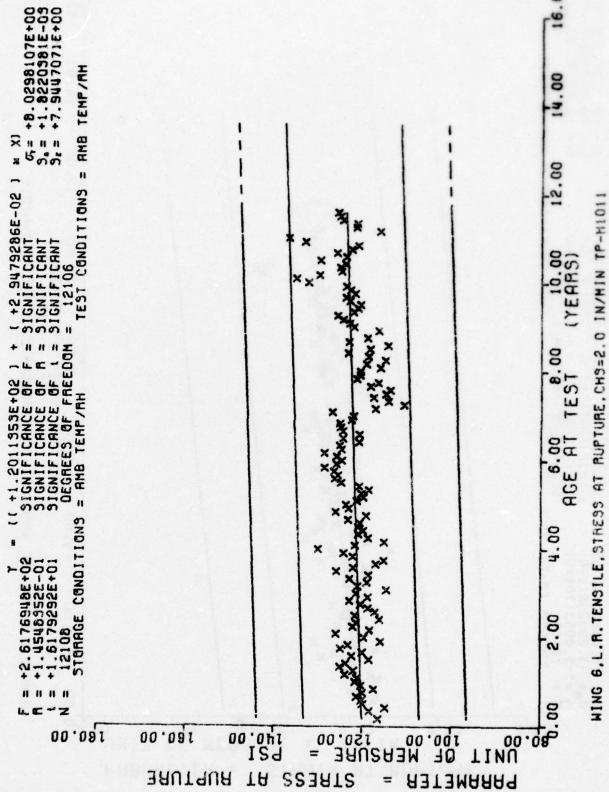
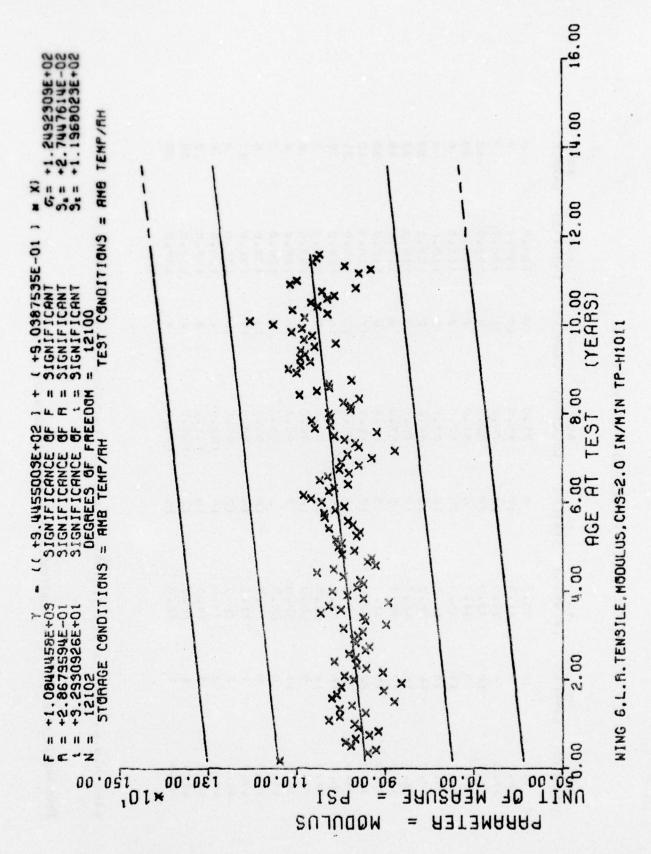


Figure 14

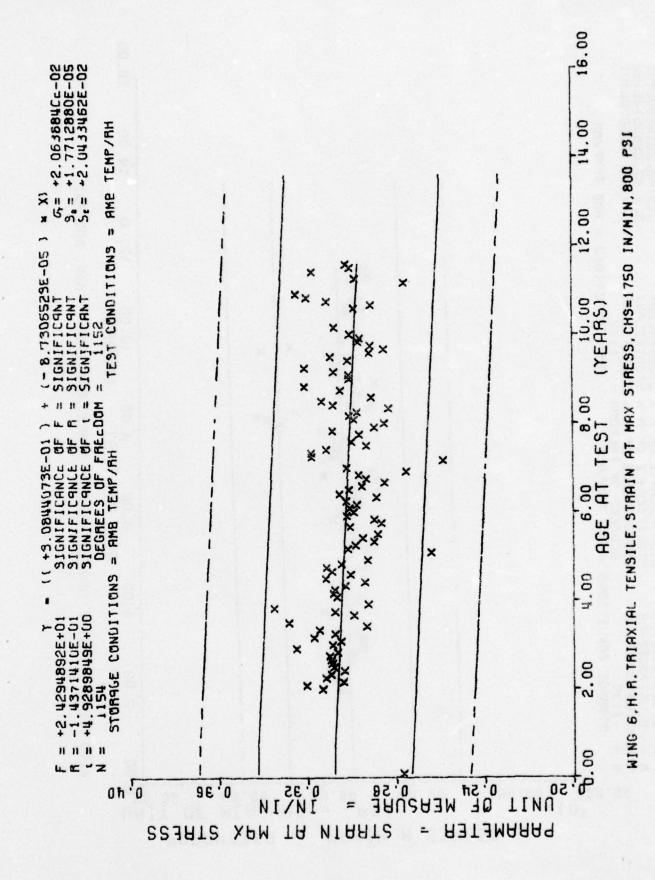


** SANDLE SIZE SUPNARY ***

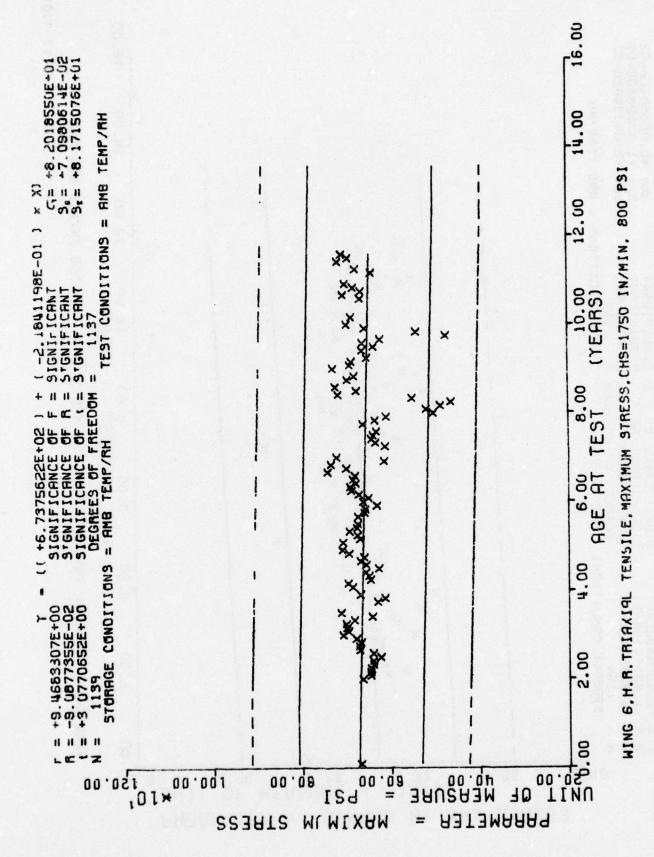
AGF
ANDLES
T

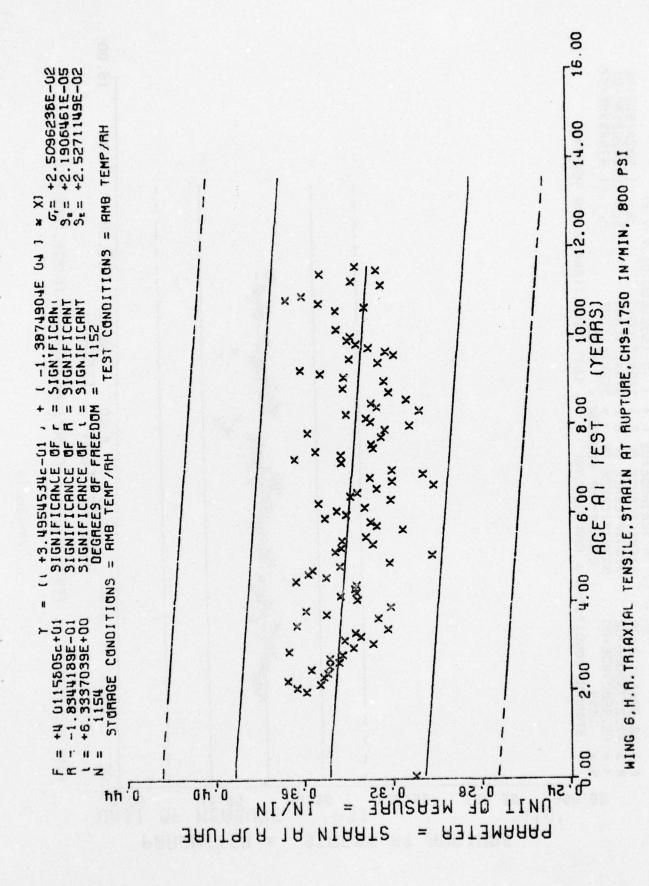
WING 6. H. F. TRIAXIAL TENSILE, STRAIN AT MAX STRESS, CHS-1750 IN/MIN. 800 PSI

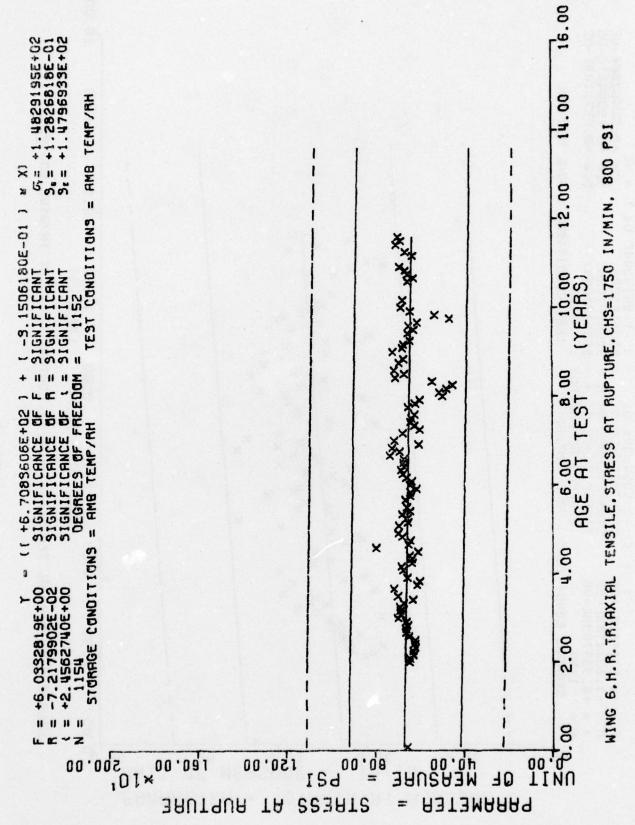
This sample size summary is applicable to figures 16 thru 20

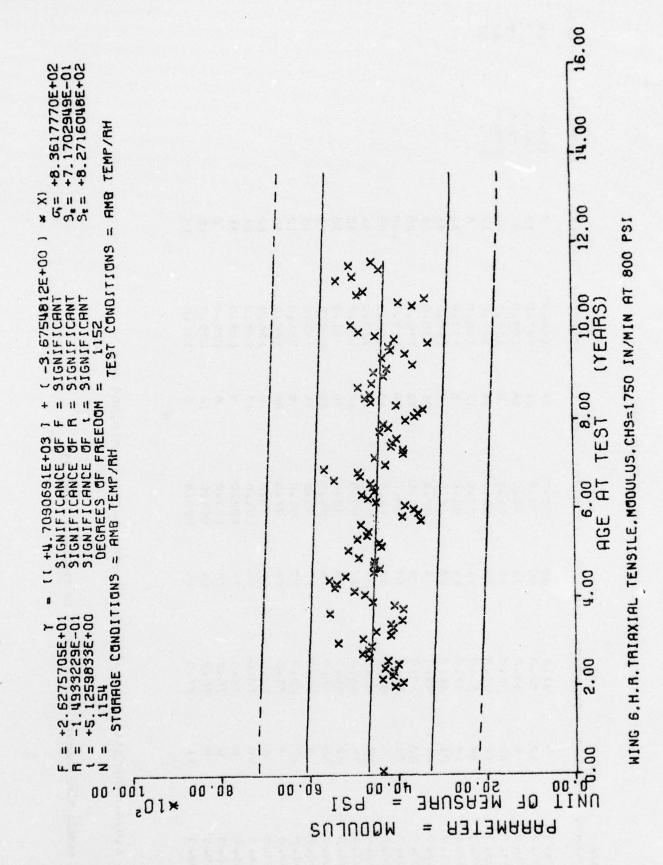


1000







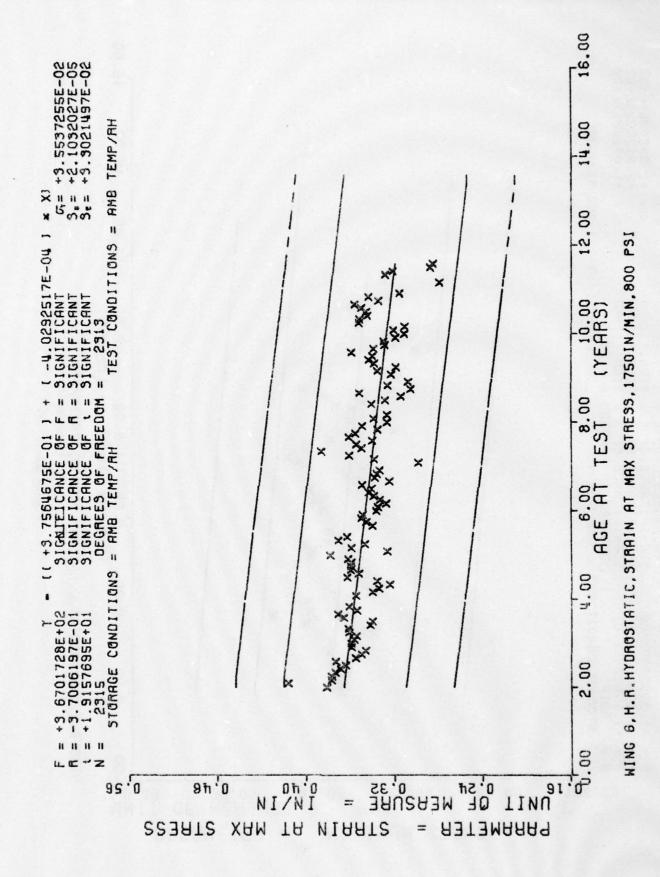


*** SAMPLE SIZE SUMMARY ***

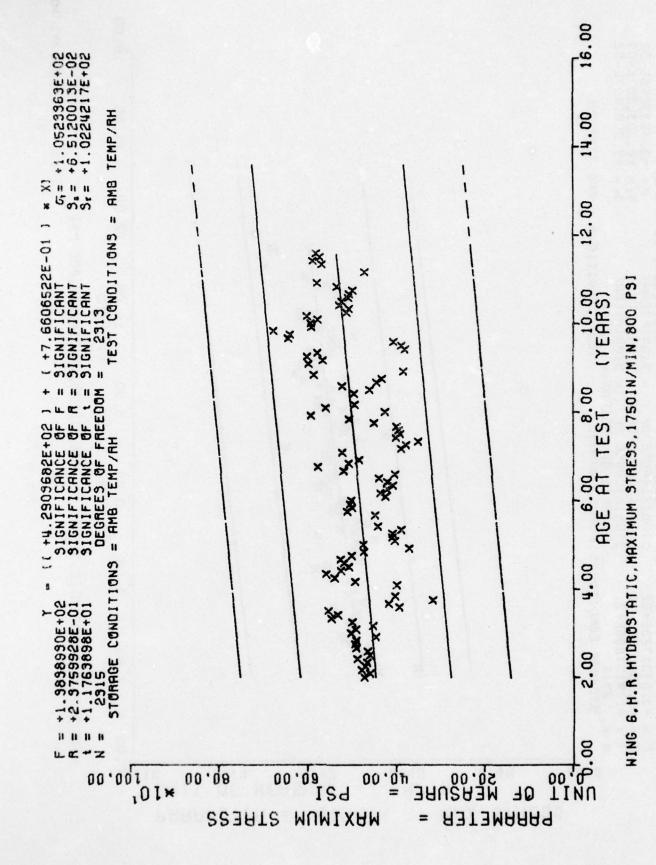
SAMPLES	24	۳	9	43	57																				
AGE (MONTHS)	134.0	136.0	137.0	1.39.0	130.0																				
SAMPLES	2	10	21	36	12	9	75	41	15	25	109	25	34	42	15	2	15	12	30	12	24	21	9	15	18
(MONTHS)	106.0	107.0	109.0	110.0	1111.0	112.0	113.0	114.0	115.0	116.0	117.0	118.0	119.0	120.0	121.0	122.0	123.0	124.0	125.0	126.0	127.0	128.0	129.0	130.0	131.0
SAMPLES	27	19	14	9	18	13	2	5	21	-15	40	40	15	14	20	22	14	2	96	5	17	2	S	14	c
AGE (MONTHS)	78.0	20.07	80.0	81.0	82.0	83.0	85.0	86.0	87.0	88.0	89.0	0.06	01.0	92.0	93.0	0.46	0.56	0.96	0.76	98.0	101.0	102.0	103.0	104.0	105.0
SAMPLES	35	65	34	10	37	4.1	48	40	4	8	17	40	84	17	25	16	27	27	24	11	44	38	28	61	15
(MONTHS)	51.0	52.0	53.0	54.0	55.0	56.0	57.0	58.0	665	.0.09	61.0	62.0	63.0	64.0	65.0	58.1	0.69	20.0	71.0	72.0	73.0	74.0	75.0	76.0	77.0
SAMPLES	6	12	9	21	12	56	18	2.1	31	23	21	2	17	24	22	20	6	17	7	S.	10	5	S	89	11
AGE (MUNTHS)	24.0	25.0	26.0	27.3	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0	36.0	37.0	38.0	39.0	40.0	41.0	45.0	43.0	44.0	45.0	46.0	49.0	50.0

WING 6. H. R. HYDROSTATIC. STRAIN AT MAX STRESS. 1750 IN/MIN. 800 PSI

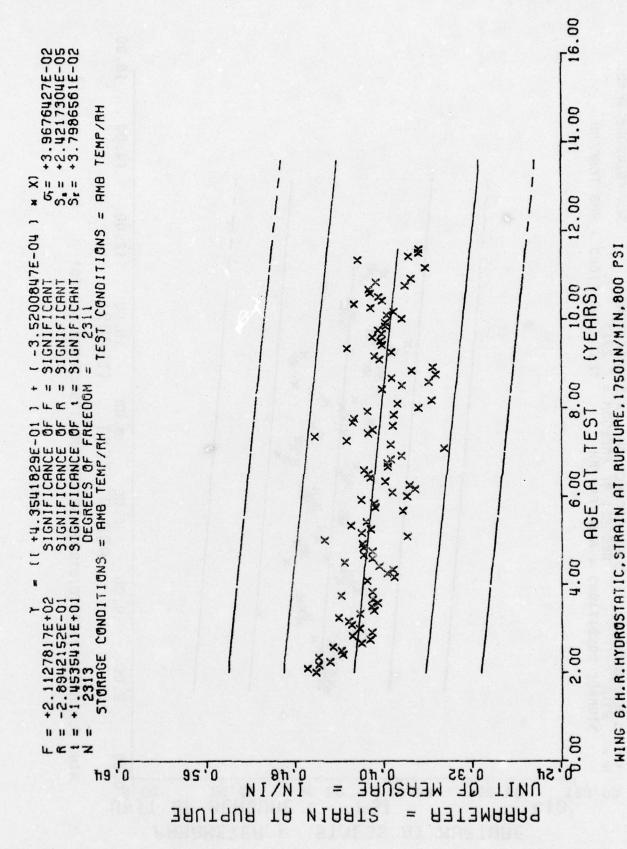
This sample size summary is applicable to figures 21 thru 25



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- 41 -

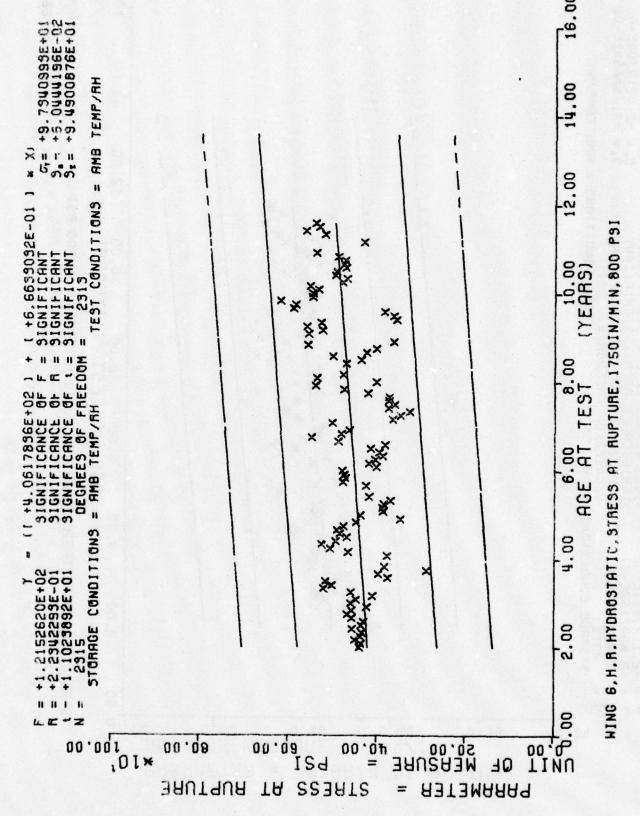
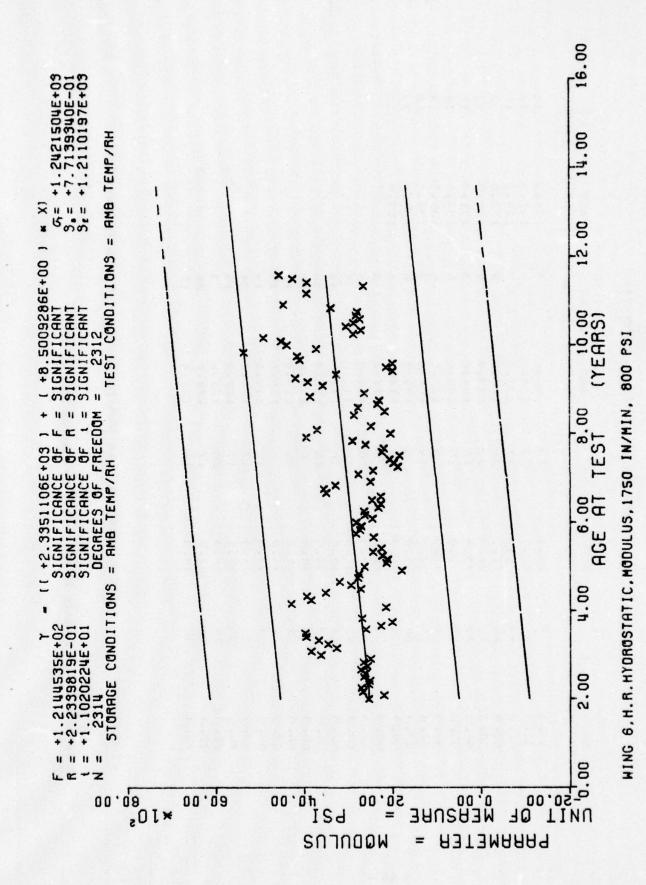


Figure 24

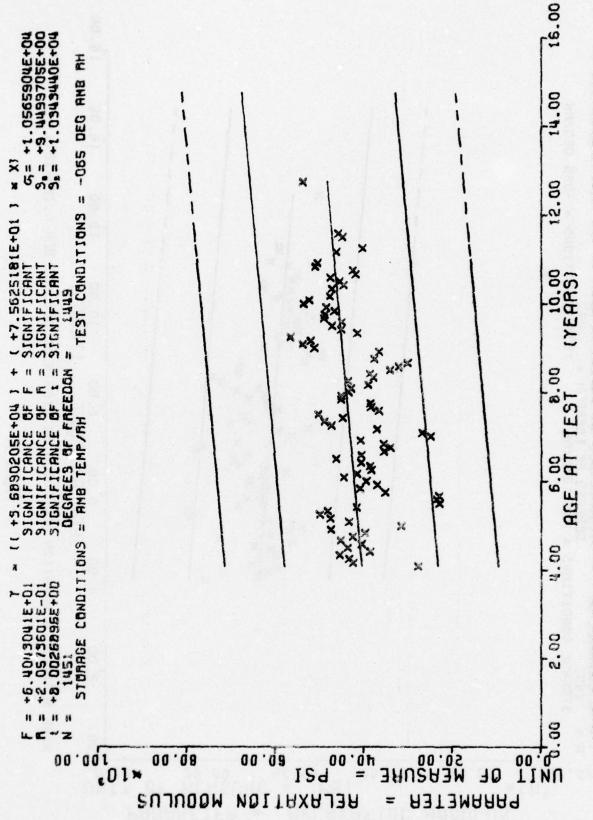


** SALIDLE STZE SUMMAPY ***

100.0 0 126.0 15 100.0 0 127.0 12 103.0 123.0 130.0 130.0 15 103.0 15 103.0 15 103.0 15 103.0 15 103.0 15 103.0 15 103.0 15 103.0 15 110.0 0 1130.0 0 0 0 0 0 0 0 0 0	ACE ACE SAMPLES (MONTHS) SAMPLES
127.0 5 128.0 5 139.0 6 138.0 9 138.0 9 138.0 153.0 153.0 153.0 153.0 153.0 153.0 153.0 153.0 153.0 153.0 153.0	
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5 129.0 6 130.0 6 134.0 9 138.0 9 138.0 9 138.0 15 15 19 19 19 19 19 19 19 19 19 19 19 19 19	
6 130.0 3 131.0 6 134.0 9 138.0 9 138.0 6 153.0 153.0 15 15 15 15 15 15 15 15 15 15 15 15 15 1	46 77.0 34
3 131.0 6 134.0 9 138.0 9 138.0 6 153.0 6 153.0 15 15 15 15 17 24 17 17 17 17 17 17 17 17 17 17 17 17 17 1	18 78.3 22
6 134.0 9 138.0 9 138.0 6 139.0 6 153.0 30 222 21 13 13 13 13 14 15 17	27 79.0 12
0 0 135.0 0 0 138.0 0 0 0 138.0 0 0 0 139.0 0 0 22 0 22 0 24 0 24 0 21	27 30.0
9 138.0 0 6 139.0 0 6 153.0 0 7 7 8 0 8 9 138.0 0 7 15 9 0 0 8 9 9 138.0	21 81.0 3
0 0 139.0 0 45.0 0 22.0 0 24.0 0 24.0 0 21.0	24 82.0 14
6 153.0 45 0 45 0 15 0 22 0 21 0 24 0 21 0 21	20 83.0 9
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	46 37.0 18
	23 33.0 16
	27 39.0 15
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00000	3 13.0 10
0000	20 94.9 17
000	30 95.0 17
0.	38 96.0 20
125.0	30 97.0 17
	30 98.0 16

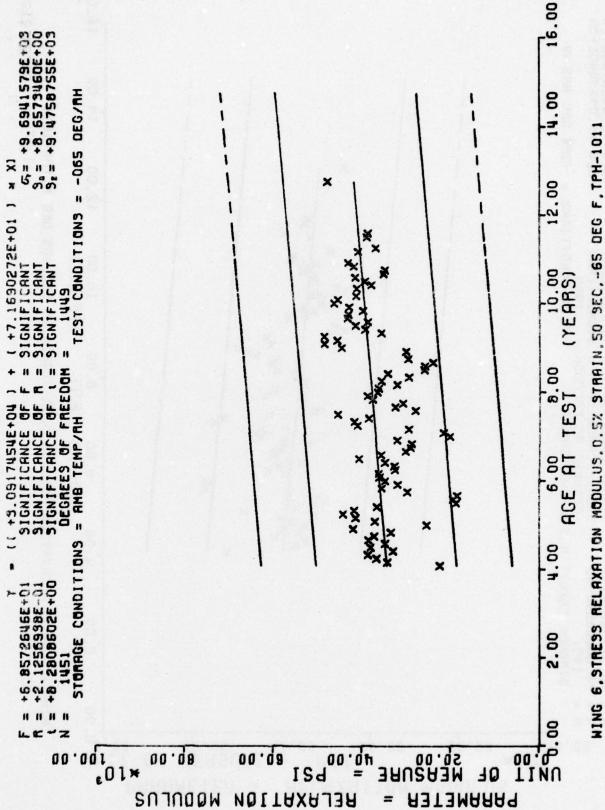
WING 6.STRESS RELAXATION MODULUS.0.5% STRAIN.10 SEC.-55 DEG F.TPH-1011

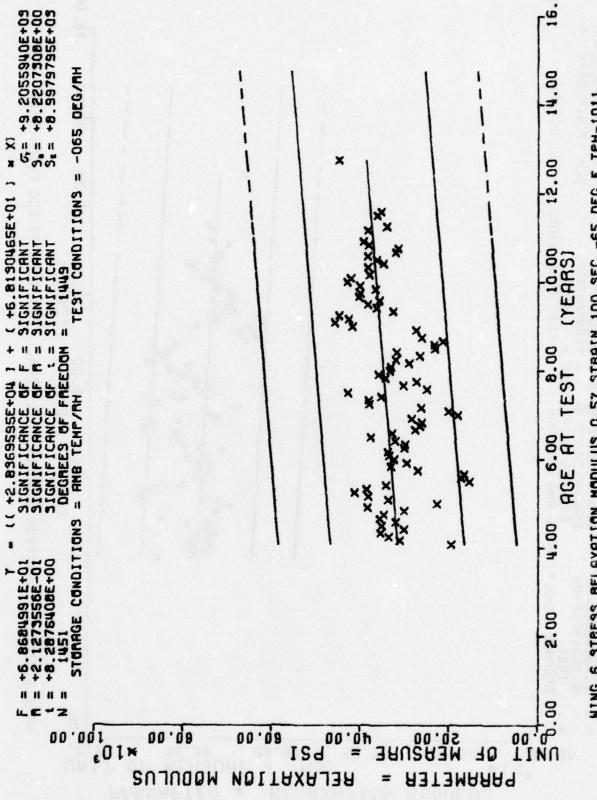
This sample size summary is applicable to figures 26 thru 29



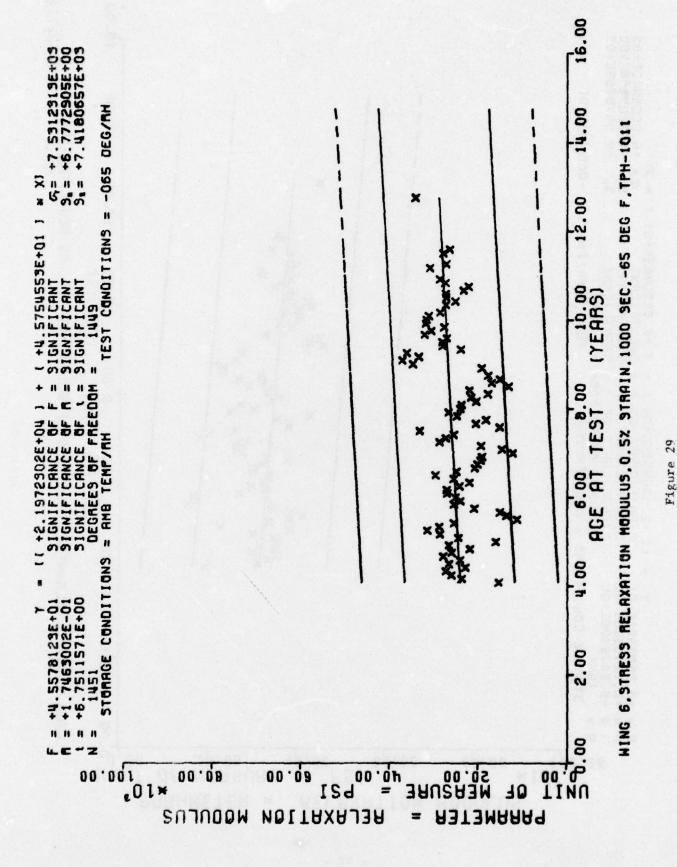
- 45 -

MING 6, STRESS RELAXATION MODULUS, 0.5% STRAIN, 10 SEC, -65 DEC F, TPH-1011





NING 6, STRESS RELAXATION MODULUS, C. SZ STRAIN, 100 SEC. -65 DEG F, TPH-1011

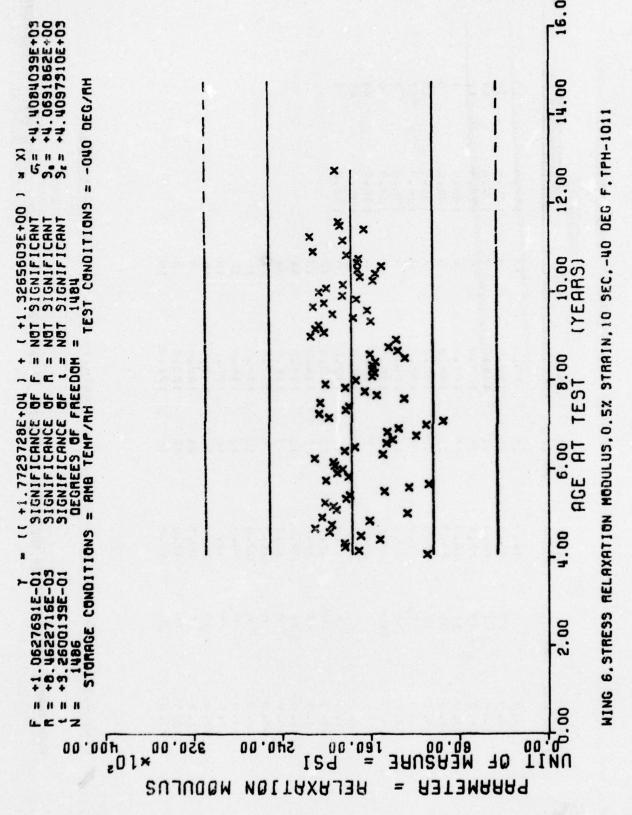


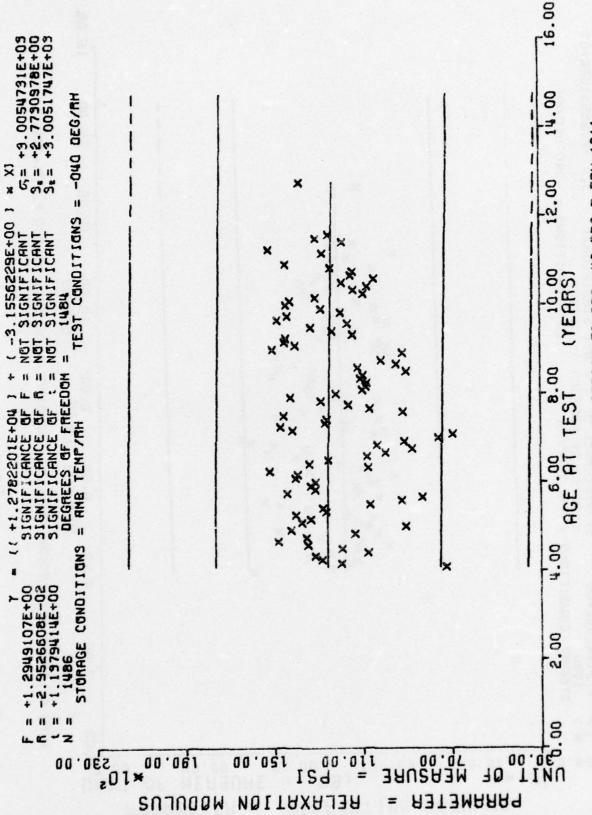
*** SAMPLE SIZE SUMMARY ***

SAMPLES	13	10	44		1	6	13	27	3	9	38	45	9												
AGE (MONTHS)	1000	126.0	127.0	128.0	129.0	1.30.0	131.0	1.34.0	135.0	137.0	138.0	135.0	153.0												
NK SAMPLES	1.5	~,	•	ت	٥	3	4	۷	c	y	ç	2	0	47	1.1	4.1	54	21	15	115	1.8	. 15	٣	cu	10
AGE (MCNTHS)	0.65	100.0	101.0	102.0	103.0	104.0	105.0	197.0	168.0	0.501	110.0	111.0	112.0	113.0	114.0	115.0	116.0	117.0	118.0	119.0	120.0	121.0	122.0	123.0	124.0
SAMPLES	3:2 2:2	10	() ()	36	0	1.	16	·	1:	9	o.	3	6	15	50	12	S	0	1.2	1.2	10	15	24	20	13
AGE (MUNTHS)	74.0	75.0	70.0	77.0	78.0	79.3	30.0	91.0		33.0	34.0	35.0	36.0	37.0	9886	0.68	0.06	91.0	92.0	93.0	94.0	95.0	0.96	97.0	9.3.0
SANPLES	4.	2.2	15	1.1	14	30	1.6	1.2	2.2	61		. 1.	202	48	24	2.1	6	9	4	·	7.1	. 30	4.1	3.6	2.5
AGE (HONTHS)	4	50.0	51.0	52,0	53.0	54.0	55.0	6,00	57.0	55.0	63.0	00,0	01.6	2.5.3	63.0	64.0	6.2.0	66.0	57.0	64.0	0.69	70.0	71.0	72.0	73.0

WING 6,STRESS RELAXATION MODULUS, 0.5% STRAIN, 10 SEC. - 40 DEC F, TPI+1011

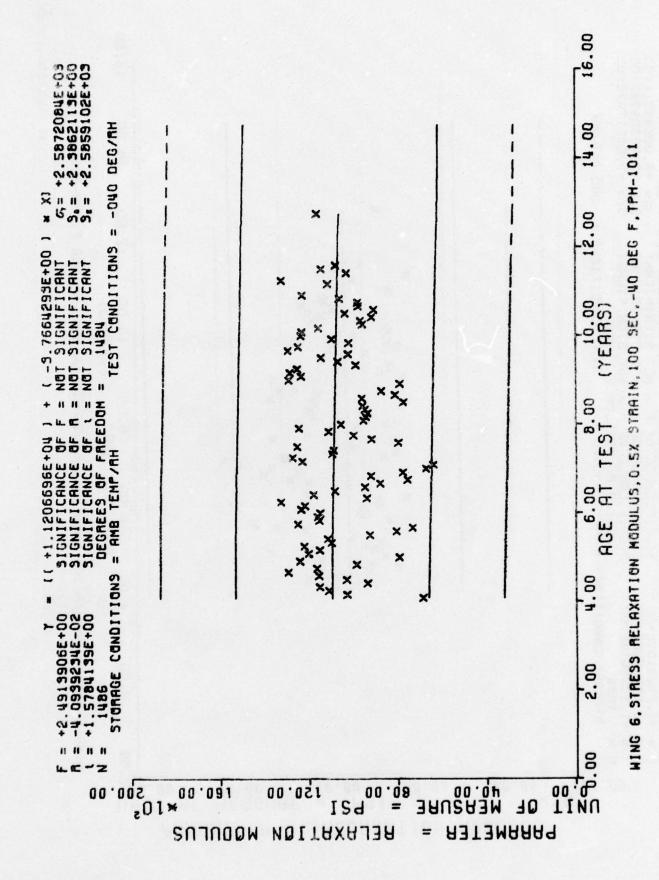
This sample size summary is applicable to figures 30 thru 33





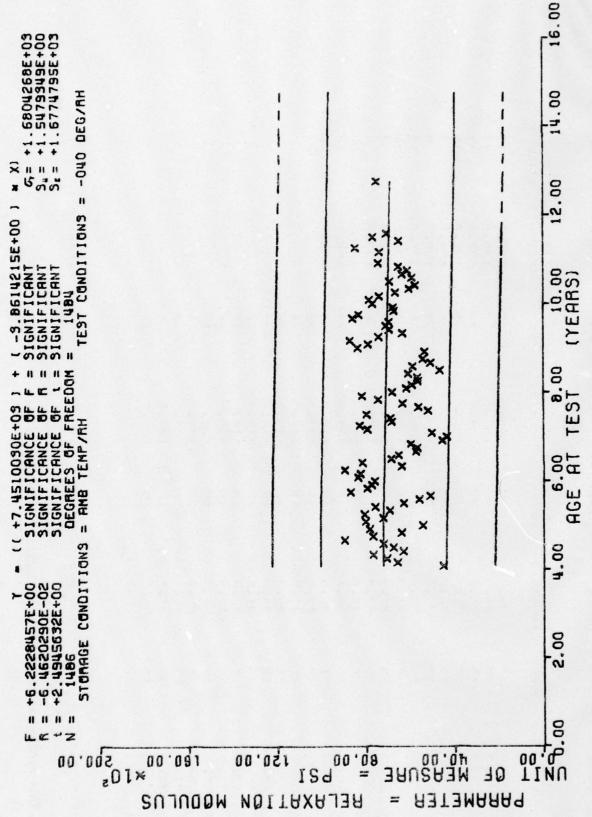
WING 6.STRESS RELAXATION MODULUS. 0.5% STRAIN, SO SEC. -40 DEG F. TPH-1011

Figure 31



1

- 52 -



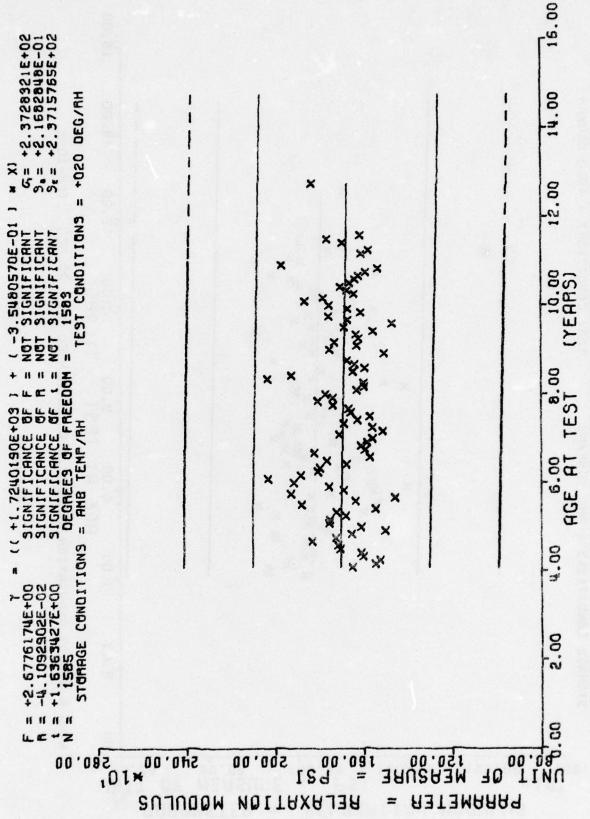
MING 6, STRESS RELAXATION MODULUS, 0.5% STRAIN, 1000 SEC, -40 DEG F, TPH-1011

*** CAMPLE SIZE CUMMA. Y ***

NR	SAMPLES	1.5	17		15	۳.	0	5	70	r	9	50	0.0	9												
AGF	(MUNTHS)	125.0	126.0	127.0	138.0	10001	1 30.0	131.0	1.36.0	175.0	137.0	138.0	130.0	153.0												
17.	5371655	C	2	1.2	u	·	٢	¥	٧	C	,	·	m	96	α) κ:	14	36	7.5	16	5	5.4	1.8	16	r		1.1
to K	(SHINDE)	0.00	001	101.0	102.0	103.0	1.4.6	1.5.0	107.1	109.0	1001	110.0	111.0	112.0	.13.0	114.0	115.0	116.0	117.0	.15.0		1.20.0	191.0	150.0	127.0	154.0
	op lank b		06	2.5	6.2	0.4	15	21	٠.	15		c	Pi	15	14	21		5.	12	12	151	<u>د ا</u>		20	12	10
	(Authorities)	20.01	74.	74.00			40.0	4000	6.18		93.3	44.0	36.0	36.0	6.29	30.08	40.08	0.00	010	0.00	07.1	0.40	0.50	96.0	0.70	٥٥.
9.	S. J. John S.		2.4	C 2				1	5	Cr	1.6			0	40	7.0	96	1.2	Ų.	1	,	00	90	5.4	3 F.	16
	(29,00,50)	40.0									C.		0.7.	61.0	60.0	6.4.0	C . 4:3	0.27	66.0	67.0	r	0.00	0.0.		72.0	77.0

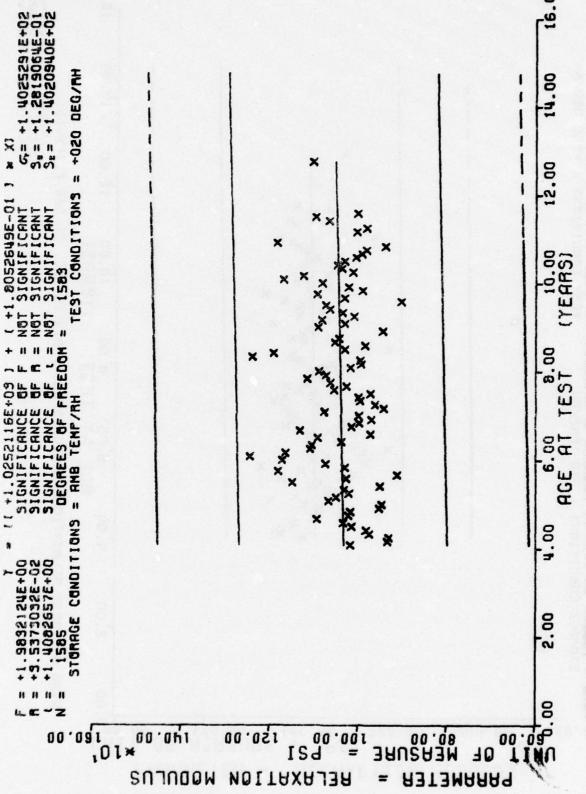
WING A.STRESS PELAKATION HOBULUS. * . . . STEATING OFC. 20 DEG F. TPH-1011

This sample size summary is applicable to figures 34 thru 37

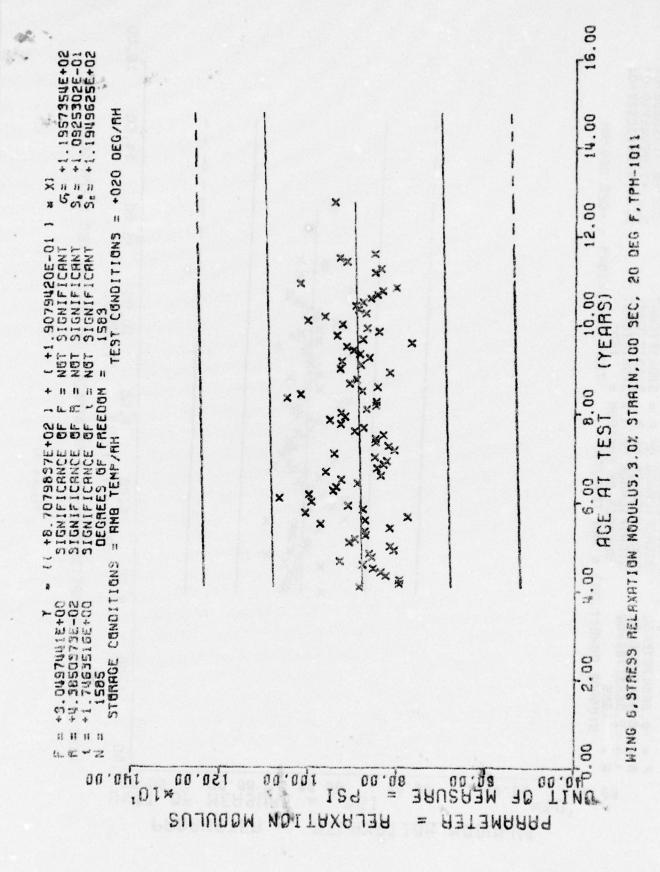


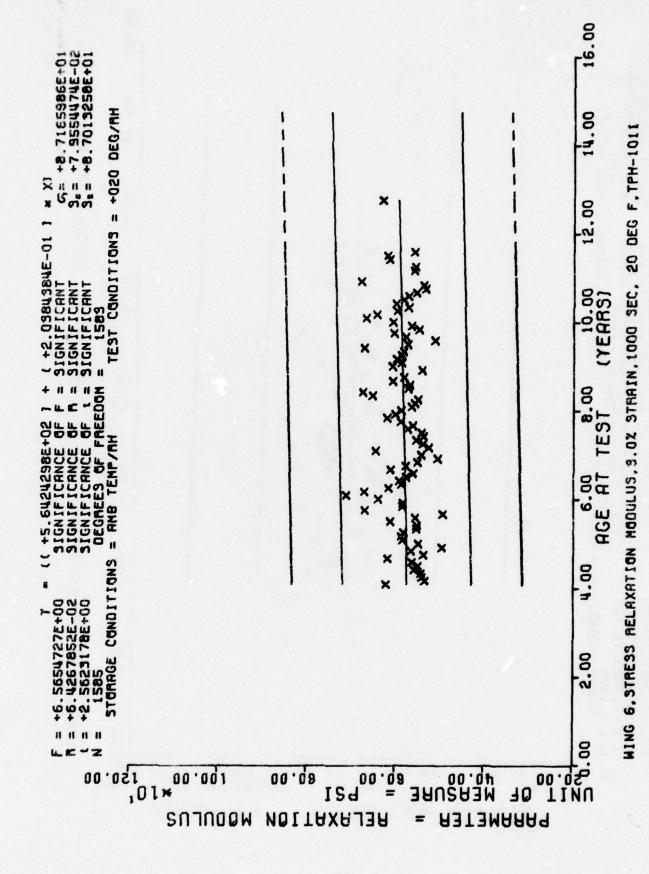
まるい

WING 6, STRESS RELAXATION MODULUS, 3.0% STRAIN, 10 SEC, 20 DEG F, TPH-1011



WING 6. STRESS RELAXATION MODULUS, 3.0% STRAIN, 50 SEC, 20 DEG F, TPH-1011





was kerward 1715 shows was

2.0 7.0 6 77.0 30 103.0 3.0 4.0 4.0 4.0 4.0 4.0 4.0 103.0 3.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 103.0 3.0 4.0	(SHIME)	S. * + (2) (2)	(MARTERS)	2 4 1 1 1 2 C	(NEW JEST)	2 A W Pot 6 G	(5011/1344)	SANFLES	(64-17-17-17-17-17-17-17-17-17-17-17-17-17-	
1.5 20.0 2.7							77.0	30		
1.3 20.0 4.8 55.0 16 80.0 15 104. 2.5 30.0 4.8 55.0 16 80.0 15 145. 3.5 3.5 4.8 55.0 16 80.0 15 104. 3.5 3.5 5.0 5.0 5.0 17 105. 3.5 3.5 5.0 5.0 5.0 17 105. 3.5 3.5 5.0 5.0 5.0 105. 4.7 4.5 5.0 5.0 5.0 5.0 105. 4.5 4.5 5.0 5.0 5.0 5.0 105. 5.5 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 5.5 105. 5.5 5.5 5.5 5.5 5.5 5.5 5.5 105. 5.5 5	0.2			u f-			78.0	יין ניין דין		
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7.1 31.0 56.0 12 13.7 13			30.0	0.4		91	90.00	15	1.65.0	
15 32.9 4.8 67.0 9 105.4 15 15.4				0.5	2 - 2 2	1.5		24		
38.0 58.0 58.0 59.0 58.0 60.0 <td< td=""><td>7.0</td><td></td><td>0.19</td><td>51.7</td><td>51.7°C</td><td>Jz.</td><td>87.50</td><td>12</td><td>108.0</td><td></td></td<>	7.0		0.19	51.7	51.7°C	Jz.	87.50	12	108.0	
15 34.0 51 55.0 23 55.0 3 110. 17 35.0 52 51.0 15 111. 17 35.0 15 52.0 15 111. 18 35.0 15 52.0 15 111. 19 40.0 12 55.0 12 115. 10 40.0 12 55.0 12 115. 11 41.0 21 55.0 12 12. 12 42.0 0 70.0 12 12. 13 40.0 0 70.0 13 72.0 14 14 45.0 0 70.0 70.0 15 12. 15 50.0 51 72.0 75.0 12 12. 16 51.0 75.0 75.0 75.0 12 12. 17 50.0 75.0 75.0 75.0 75.0 12 18 50.0 51 75.0 75.0 75.0 75.0 19 75.0 75.0 75.0 75.0 75.0 19 75.0 75.0 75.0 75.0 10 75.0 75.0 75.0 75.0 10 75.0 75.0 75.0 75.0 10 75.0 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75.0 75.0 75.0 10 75	0.0	tr	33.0	6.7	58.6	16	33.0	6		
32 35.0 30 60.0 23 65.0 3 111 47 36.0 15 61.0 15 96.0 15 112 40 33.0 1 63.0 21 66.0 21 67.0 114 40 40.0 1 65.0 27 91.0 9 117 13 40.0 2 65.0 2 91.0 9 117 13 42.0 2 65.0 3 65.0 9 117 13 42.0 2 65.0 3 92.0 117 117 11 13.0 3 65.0 3 65.0 9 117 117 14 45.0 9 70.0 9 70.0 9 117 117 14 45.0 9 70.0 9 70.0 24 123 15 45.0 9 72.0 3 72.0	0.0	3.6	34.0	1.0		U	84.0	Ó		
47 36.0 52 61.0 15 97.0 15 11.2 40 33.0 13 63.0 21 56.0 18 11.4 40 33.0 13 64.0 27 80.0 18 115 40 40.0 12 64.0 27 80.0 21 115 116 13 41.0 21 65.0 9 117 116 116 117 13 42.0 9 65.0 3 92.0 9 117 1 43.0 9 77.0 3 12 120 4 45.0 9 77.0 4 96.0 24 123 6 45.0 9 77.0 4 96.0 24 123 7 44.0 9 77.0 4 96.0 24 123 8 46.0 9 77.0 4 96.0 24 123 <	10.0	32	35,0	30		en Fo	95.0	m		
44 37.9 15 62.6 51 51.0 51 114.0 46 46.0 27 89.0 16 115.1 38.0 13 64.0 27 89.0 16 115.1 30 40.0 12 65.0 21 16 117.1 31 65.0 3 91.0 9 117.1 4 46.0 3 69.0 3 95.0 24 121.1 4 45.0 9 71.0 44.0 96.0 24 121.2 4 45.0 9 72.0 13 95.0 24 121.2 5 46.0 9 72.0 13 95.0 24 121.2 6 47.0 9 76.0 21 125.1 125.1 10 40.0 76.0 24 100.0 3 125.1 11 40.0 76.0 24 101.0 12 127.1 12 10.0 24 101.0 12 127.1 12 10.0 24 101.0 12 127.1 12 10.0 24 101.0 12 127.1 12	11.0	17	36.0	6.9		1.5	0. 20	15	2	
10	1.26.3	÷ +	37.0	15	3.53	13	97.0	21	. 7.	
40 51 64.0 27 84.0 16 175 40.0 12 65.0 9 10.0 9 117.0 13 42.0 9 91.0 9 117.0 1 42.0 9 65.0 9 117.0 2 42.0 9 72.0 12 117.0 4 45.0 9 71.0 9 95.0 24 121.0 9 45.0 9 71.0 44 96.0 24 121.0 19 40.0 9 72.0 3 95.0 24 123.0 10 40.0 9 72.0 3 96.0 24 123.0 10 40.0 9 72.0 3 96.0 24 123.0 10 40.0 9 76.0 3 96.0 21 125.0 10 40.0 9 76.0 3 100.0 3 125	13.0	O.	38.0	1.	63.0	21		18	. 47	
40.0 12 65.0 9 117.0 13 41.0 21 66.0 9 117.0 21 42.0 9 91.0 9 117.0 1 43.0 9 65.0 9 12 117.0 7 44.1 3 69.0 9 70.0 12 117.0 4 45.0 9 70.0 9 71.0 94.0 94.0 12 121.0 9 46.0 9 71.0 44.0 96.0 24.1 121.2 9 47.0 9 72.0 36.0 21 123.0 10 40.0 9 72.0 36.0 31.0 10 40.0 9 72.0 31.0 31.0 10 40.0 9 72.0 31.0 31.0 10 40.0 9 76.0 31.0 31.0 10 10 76.0 27 101.0 31.2 12 10 3 12.0 31.2 12 10 34.0 34.0 34.0 10 10 10 10 10 10 10 10 10	14.0	14	99.0	7.1	64.0	33	80.0	1.6		
13. 41.0 21 65.0 9 91.0 9 117. 1 13.0 9 67.0 3 62.0 15 146.1 7 44.0 3 69.0 3 94.0 12 117. 7 44.0 3 60.0 24 94.0 12 123. 8 45.0 9 71.0 44 96.0 24 122. 9 70.0 3 72.0 36 124.1 10 40.0 3 72.0 13 125.0 10 40.0 3 75.0 15 125.0 10 20 21 120.0 3 125.0 10 20 24 101.0 12 129.0 10 20 24 101.0 12 129.0 10 20 24 101.0 12 129.0 10 20 20 20 12 129.0 10 20 20 10 12 129.0 10 20 20 10 12 129.0 10 20 20 10 10 12 10 <t< td=""><td>15.0</td><td>46</td><td>0.04</td><td>210</td><td>65.0</td><td>121</td><td>0.00</td><td>21</td><td>116.0</td><td></td></t<>	15.0	46	0.04	210	65.0	121	0.00	21	116.0	
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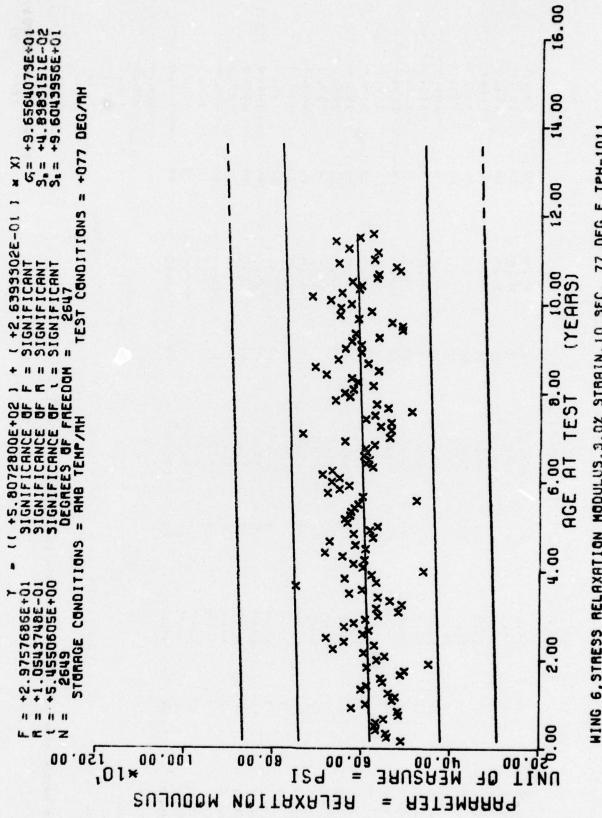
This sample size summary is applicable to figures 38 thru 41

J 0 2 4

135.0

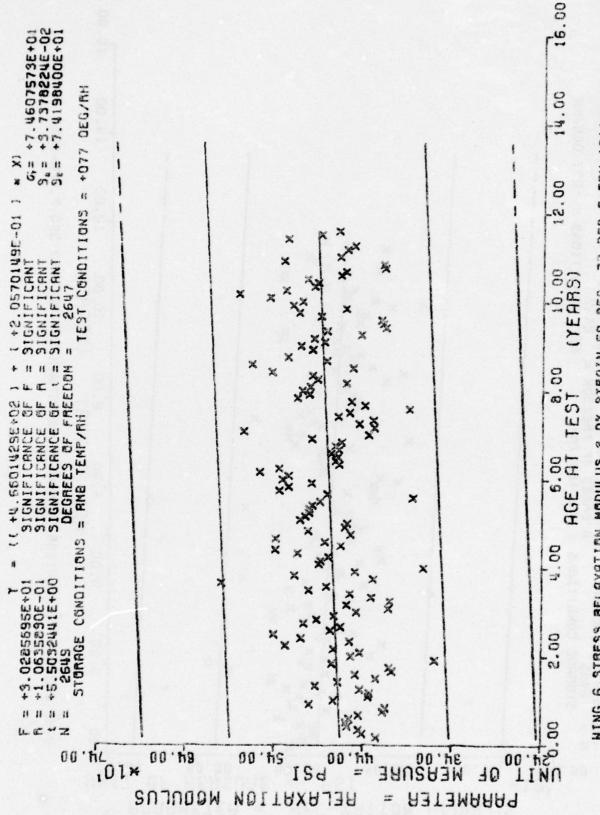
242

132.0



WING 6, STRESS RELAXATION MODULUS, 3. 3% STRAIN, 10 SEC. 77 DEG F. TPH-1011

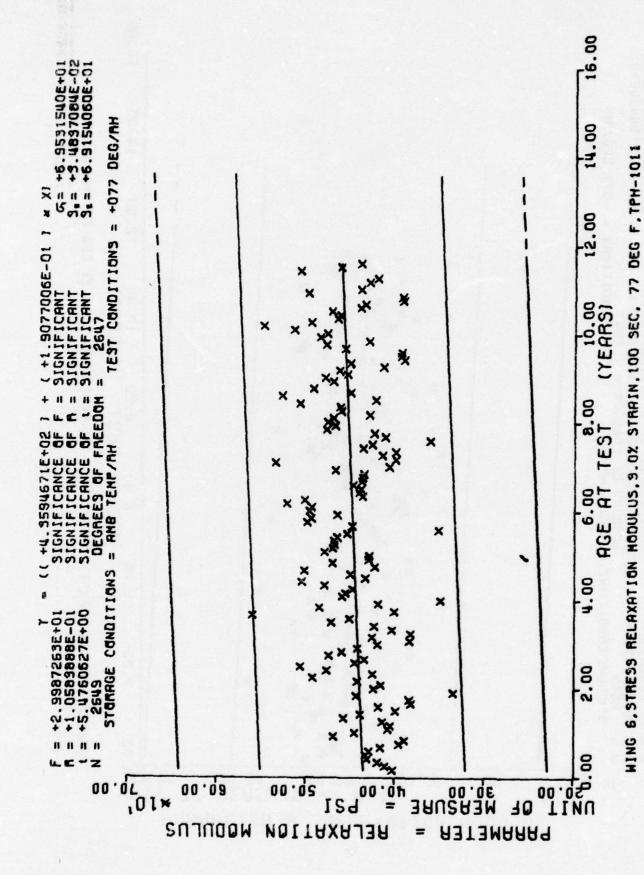
- 61 -



14

77 DEG F.TPH-1011 HING 6, STRESS RELAXATION MODULUS, 3.0% STRAIN, SO SEC.

39



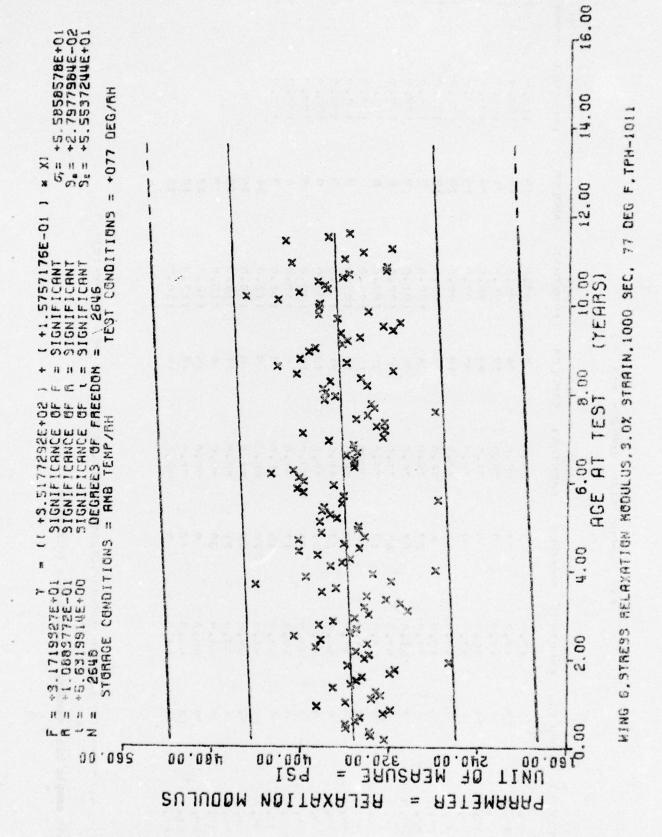


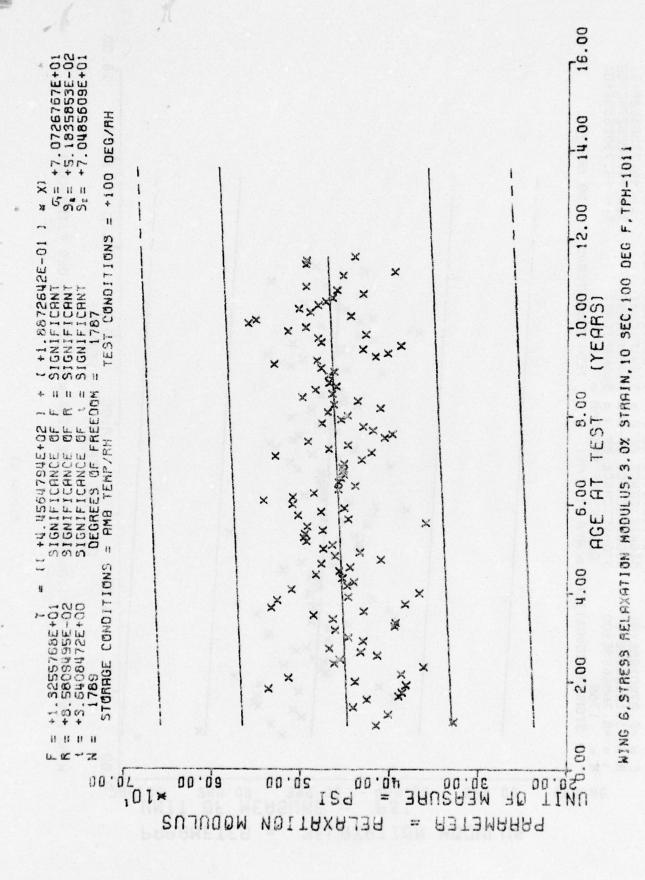
Figure 41

*** Truck SIZE SUMMARY ***

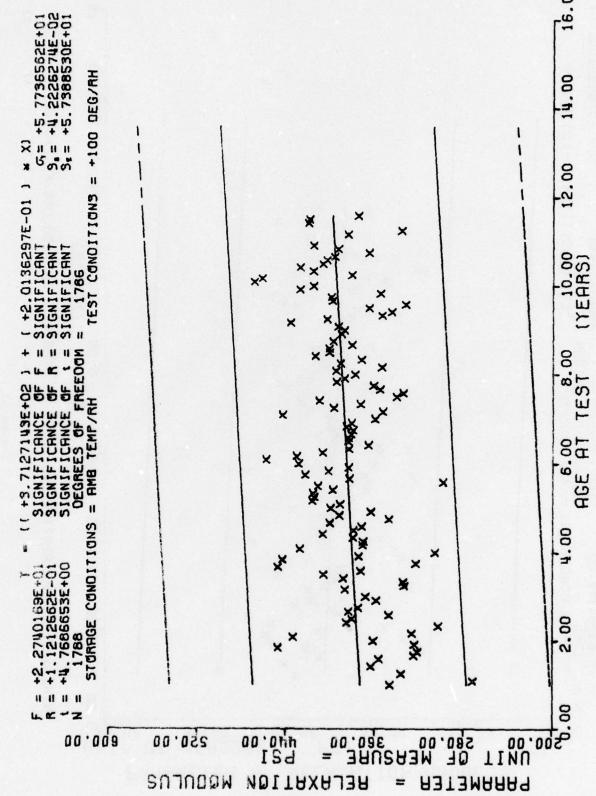
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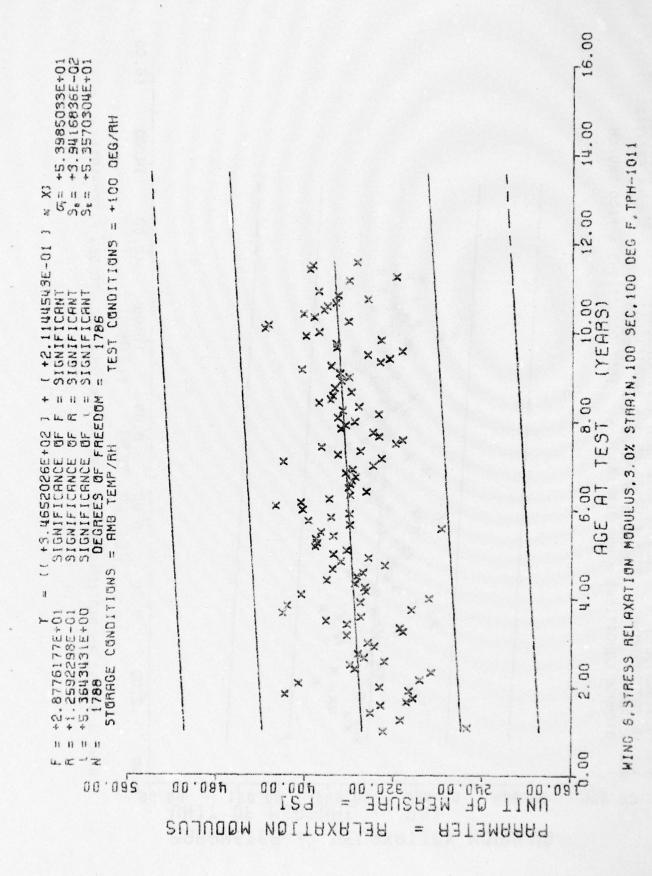
This sample size summary is applicable to figures 42 thru 45

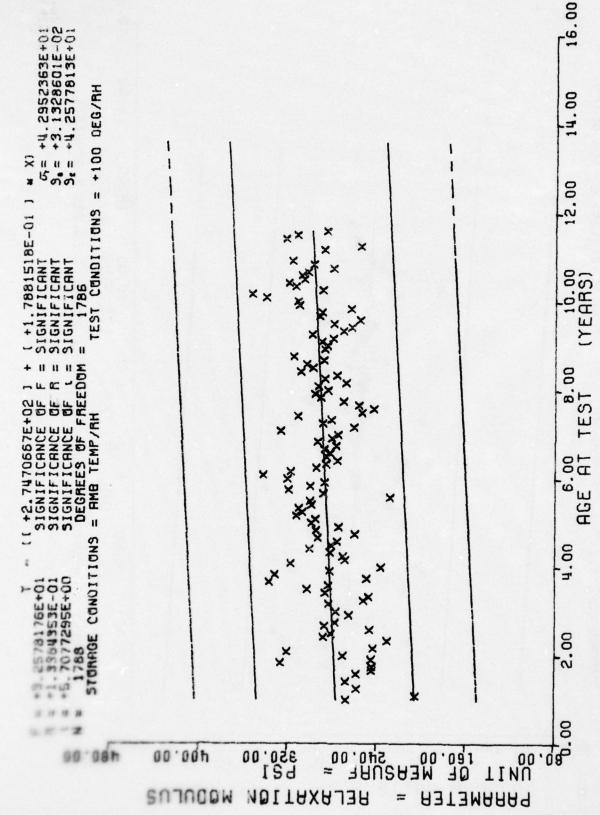


in.



WING 6, STRESS RELAXATION MODULUS, 3.0% STRAIN, 50 SEC, 100 DEG F, TPH-1011





WING 6, STRESS RELAXATION MODULUS, 3.0% STRAIN, 1000 SEC, 100 DEG F, TPH-1011

*** SAMPLE SIZE SUAPARY ***

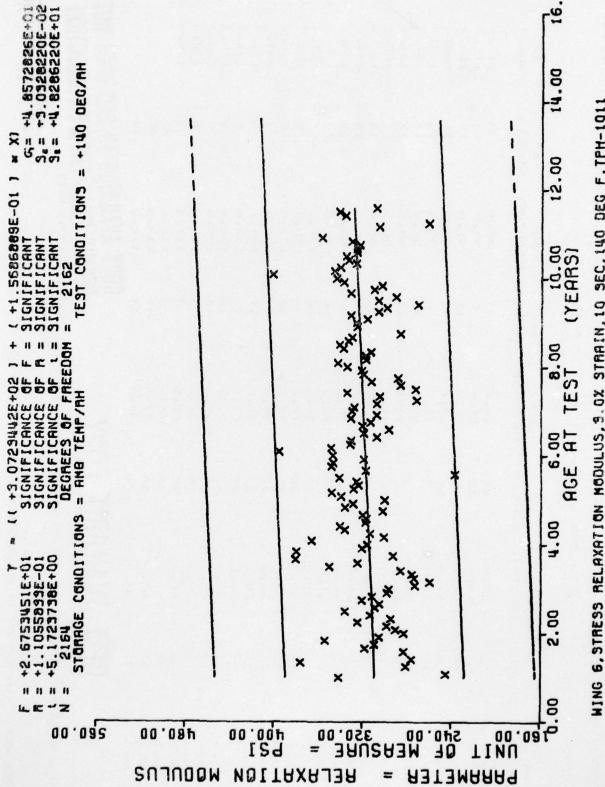
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22.0	. 3	47.0	0	72.0	39	0.79	14	123,0	٠
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0.00	45	0.40	27	76.6	14	104.0	3	1.30.0	Ç
30.0	36	0.83	27	0.03	17	105.0	m	131.0	1.
31.0	5.5	56.0	29.4	0.13	13	107.0	9	1 34 . 17	24
32.0	5.1	67.0	3.3	82.0	15	108.0	6	135.0	Control of the last
33.0	27	58.0	24	83.0	12	100.0	9	137.0	0
34.0	57	59.0	6	84.0	6	110.0	3	1.38.0	95
35.0	30	60.0	17	0.33	٢	11110	2	130.1	48
36. 6	45	61.0	24	86.0	5		21		
37.0	121	62.0	48	0.79	12	113.0	36		
		0 6 4	3.1	3 4 3 3	0.	114.0	18		

BEN MING SSTRESS HELAXATICH ADDULUS.3.0% STRAIN OF P.TFH-1011

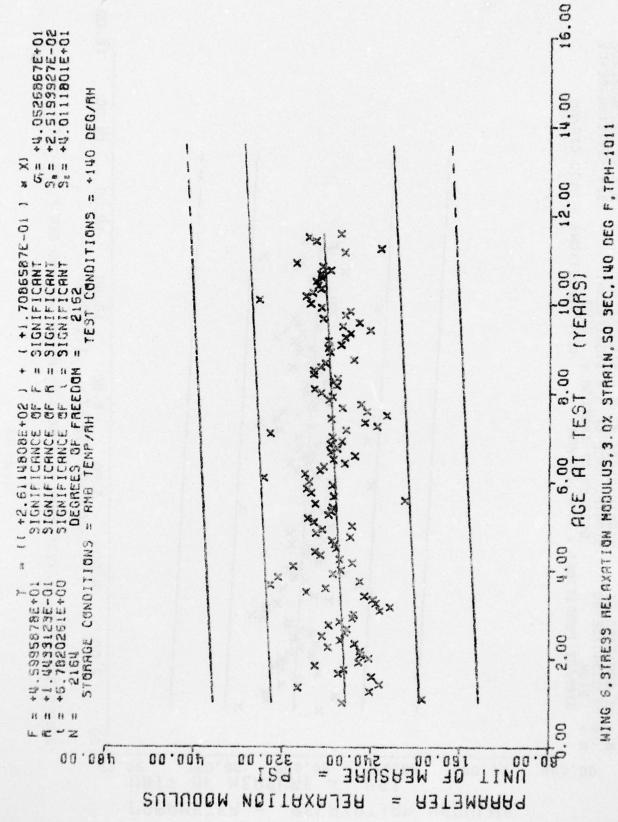
This sample size summary is applicable to figures 46 thru 49

- 70 -

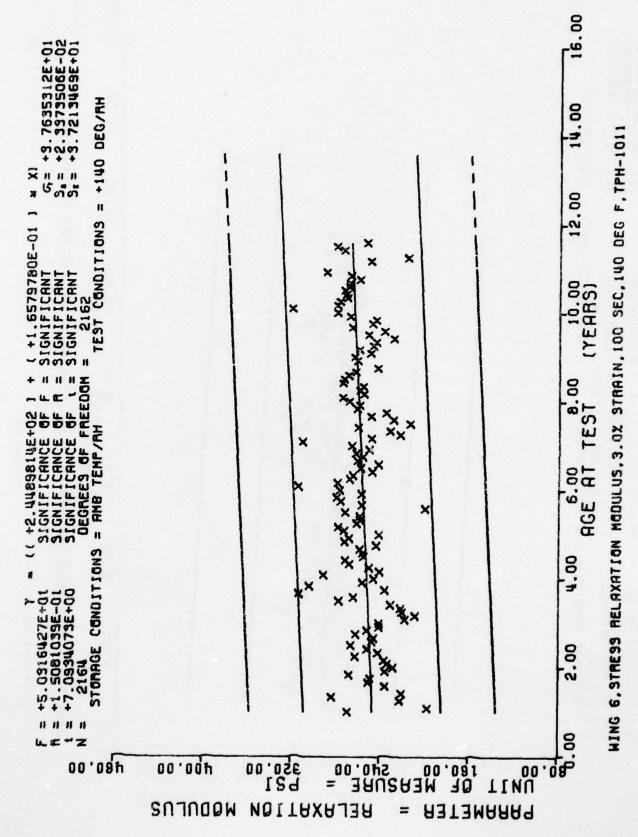


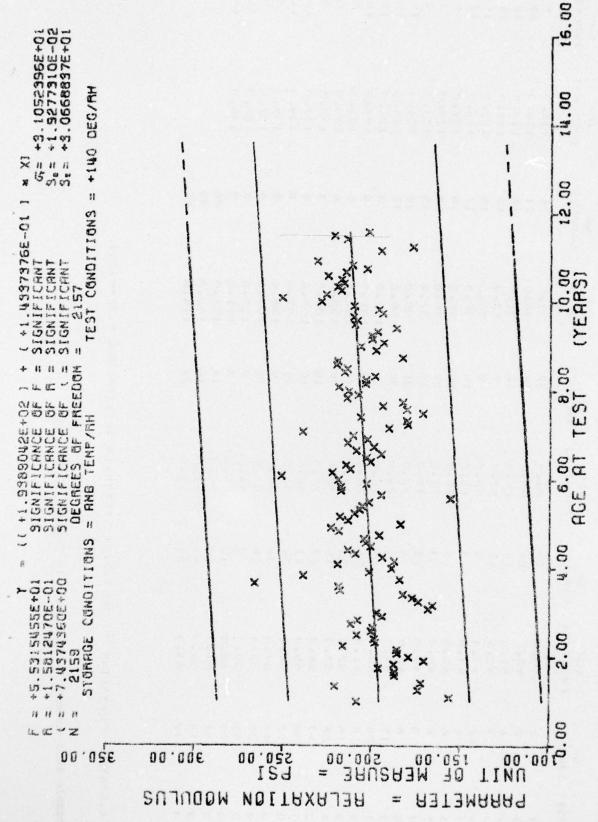
WING 6, STRESS RELAXATION MODULUS, 9.0% STRAIN, 10 SEC, 140 DEG F, TPH-1011

Figure 46



Figure, 47



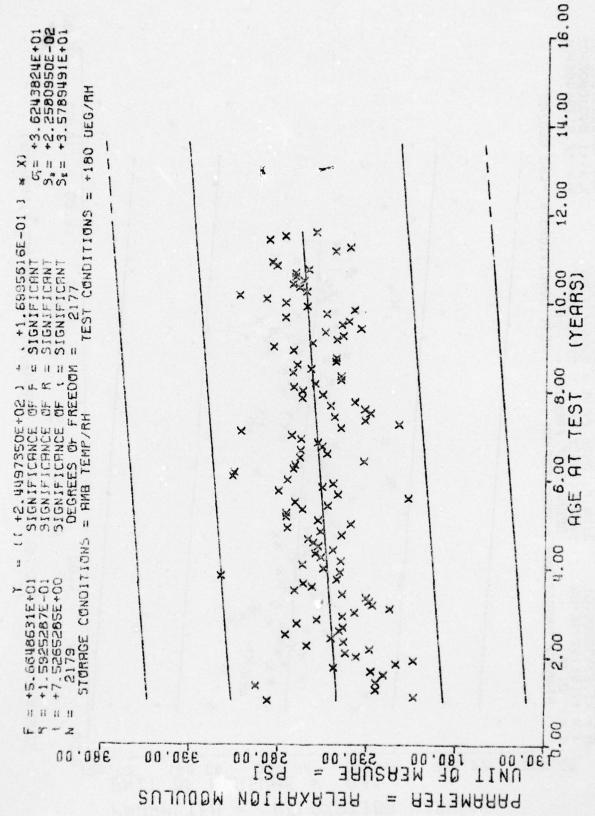


6. STRESS RELAXATION MODULUS, 3. 0% STRRIN, 1000 SEC. 140 DEG F. TPH-1011 HING

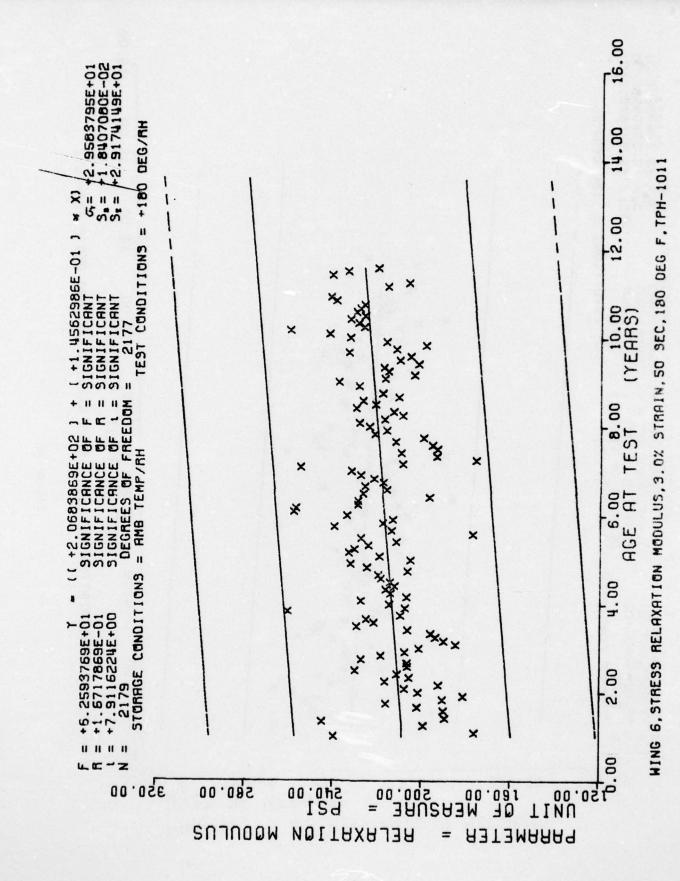
	S) SAMPLES	0"	27	61	14	15	17	9	**	C)	- 15	15	1.3	15	6	9	6	-	12	~)	c	54	44		
	AGE (MENTHS)	115.0			118.7	119.0	120.0	121.0	122.0	123.0	124.0	125.0	126.0	127.0	128.0	129.0	1.30.0	131.0	134.1	-135.0	137.0	138.0	139.0		
	NP SAMPLES	16	21	15	12	15	17	18	27	15	18	12	8	6	9	9	8	9	9	6	9	9	3	24	39
	AGE (MONTHS)	0.08		91.0	92.0	93.0	94.0	95.0	0.96	97.0	98.0	0.66	10000	101.0	102.0	103.0	104.0	105.0	107.0	108.0	109.0	110.0	1111.0	112.0	113.0
A+	SAPPLES	7.0	12		ю	6	18	50	7.2	45	21	30	27	33	24	36	15	10	21	G	15	0	3	15	15
SIZE SUMMAKY	AGE (ACNTHS)	64.0	ı	0.00	67.0	68.0	0.63	20.0	71.0	72.0	73.0	24.0	75.0	76.0	77.0	78.0	18.0	9.08	91.6	82.0	83.0	94.0	85.6	96.0	87.0
3 1dW 75 ***	SAMPLES		α.		12	Ó		9	3	12	9	9	27	5.1	53	15	2.2	2.2	24	36	24	6	15	24	46
	AGE (MUNTHS)	908	0.00	41.0	42.0	43.0	44.0	45.0	46.0	47.0	48.0	46.3	50.0	51.0	52.0	53.0	54.0	55.0	56.0	57.0	58.0	6.65	60.09	61.0	62.0
	NR SAMPLES	r	, ,	, .	, M)	12	9	•	Q	Ε.	9	18	20	15	15	56	1.5	66	F1 P7	48	30	5.1	27	51	
	AGE (MONTHS)		6.5.1	15.0	16.0	17.0	19.1	20.0	21.0	32.0	23.0		25.0	26.)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0	36.0	27.0

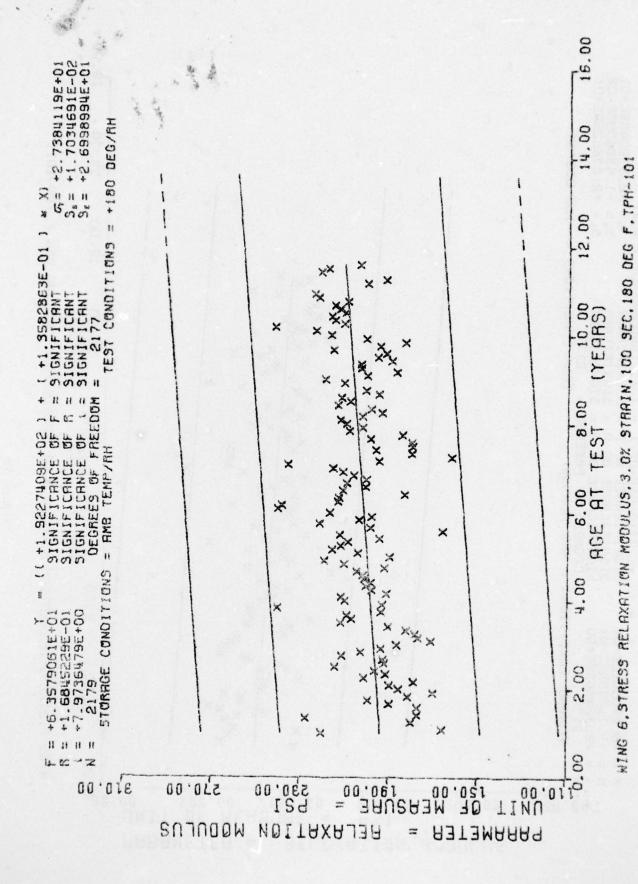
WING 6.STRESS RFLAXATION MODULUS.3.0% STFAIN.10 SEC.180 DEC F.TPH-1011

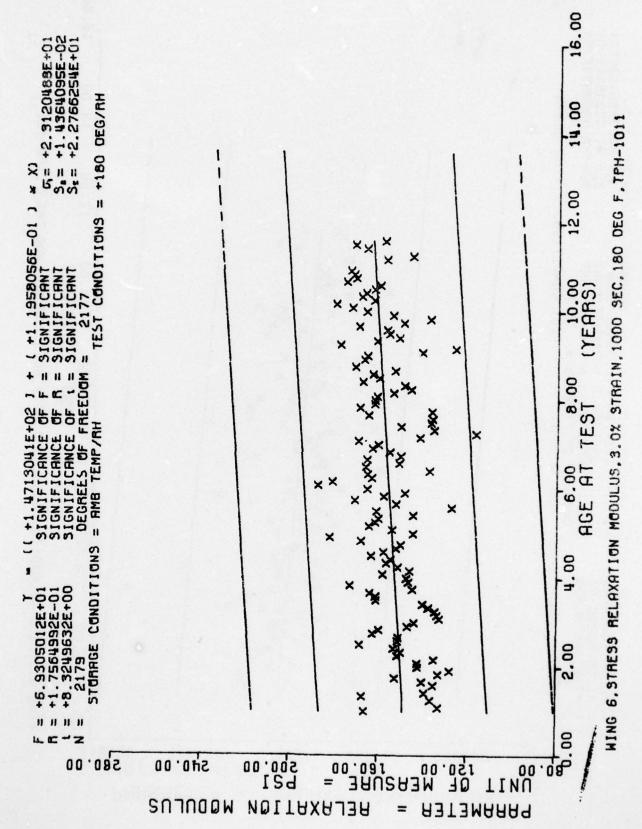
This sample size summary is applicable to figures 50 thru 53



MING 6.STRESS RELAXATION MODULUS.3.0% STRRIN, 10 SEC, 180 DEG F, TPH-1011





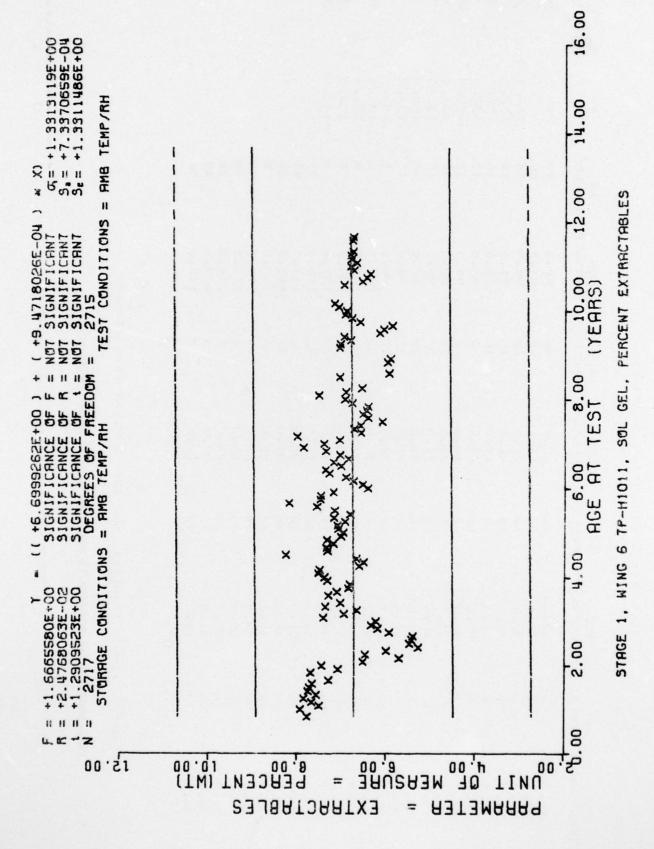


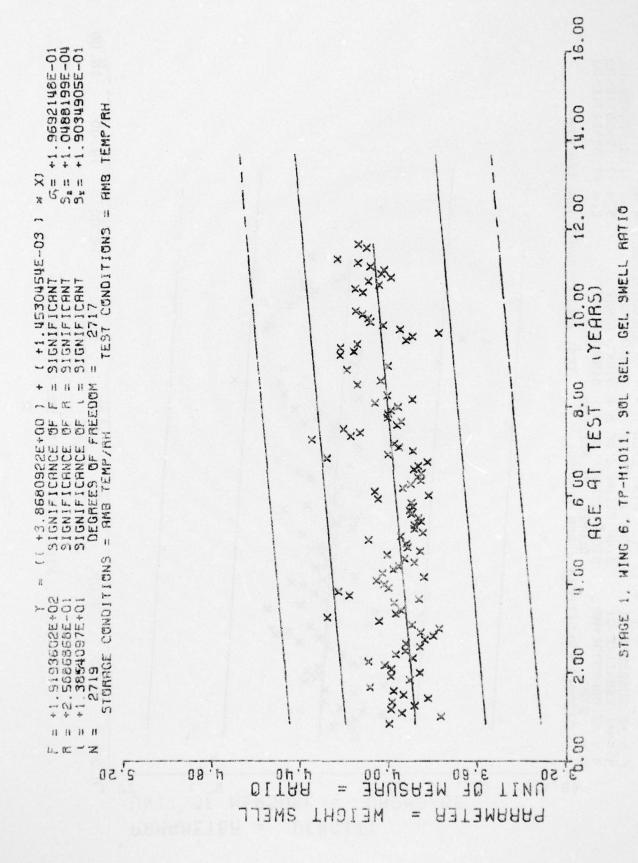
p.

AMELES	6.4	58	2.0	*	3.6	*	0 7	16	31	24	7	34	nu	æ	7	17									
(MUNITHS)	119.0	125.0	121.0	1.22.0	127.0	128. J	150.0	130.0	131.0	132.0	133.0	1 34.3	132.0	136.0	139.0	140.0									
SAMPLES	20	28	24	40	16	12	91	20	12	12	91	00	4	00	89	80	20	44	20	60	48	48	12	19	5.6
(MCNTHS)	88.0	89.0	0.06	01.0	92.0	03.0	0.46	0.50	0.96	0° 45	98.0	0.66	102.0	103.0	106.0	107.0	110.0	11100	112.0	113.0	114.0	115.0	116.0	117.0	0.011
SANPLES	35	46	77	16	16	no	a)	12	32	48	32	72	52	40	32	32	32	32	1.1	8	1.2	8	6	7	a
(MCNTHS)	63.0	64.0	65.0	66.0	67.0	0.49	0.69	70.07	71.0	72.0	73.0	74.0	75.0	7 76.0	177.0	7,200	19.0	180.0	81.0	92.0	83.0	64.0	1.59/	0/98/	100
SAMALES	* 27	~ -	12	20		16	7	ω	12	1.6	24	10	2	, 20	60 /	111	36/	33	9	112	0 7	62	/ 28 /	31/	,
(MONTHS)	1 6.73	38.0	10.0	404	1	43.0	44.0	45.0	40.0	47.0	48.0	49.0	50.0	51,63	52.3	53.0	54.0	55.0	56.0	57.0	56.0	9.05	56.3	51.0	
SAMPLES	4		i q	ı vi	. 7	47	4	26	2.1	3	ù.		7	36	56	24	26	56	**	7.6	35	3.5	3.6	5.5	
(MUNITHS)	10.01				C . 5 .	10		0.3.	19.0	20.0	33,0	23.3	24.6	23.0	20.0	27.0	23.0	29.0	10.0		0	13.0	34.0	45.0	

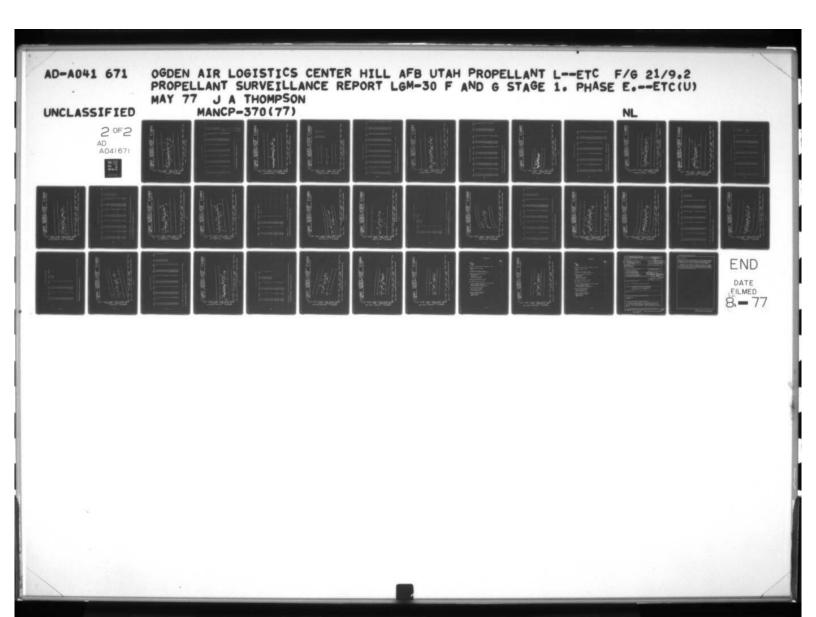
STAGE 1. WING 6 TO-HIOIL. SU/ GH, FFHILM LYTRACTABLES

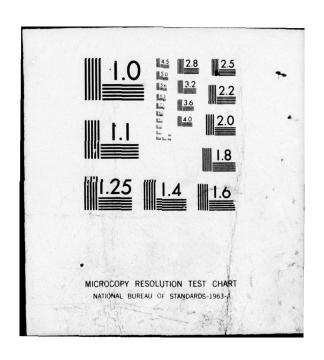
This sample size summary is applicable to figures 54 thru 56

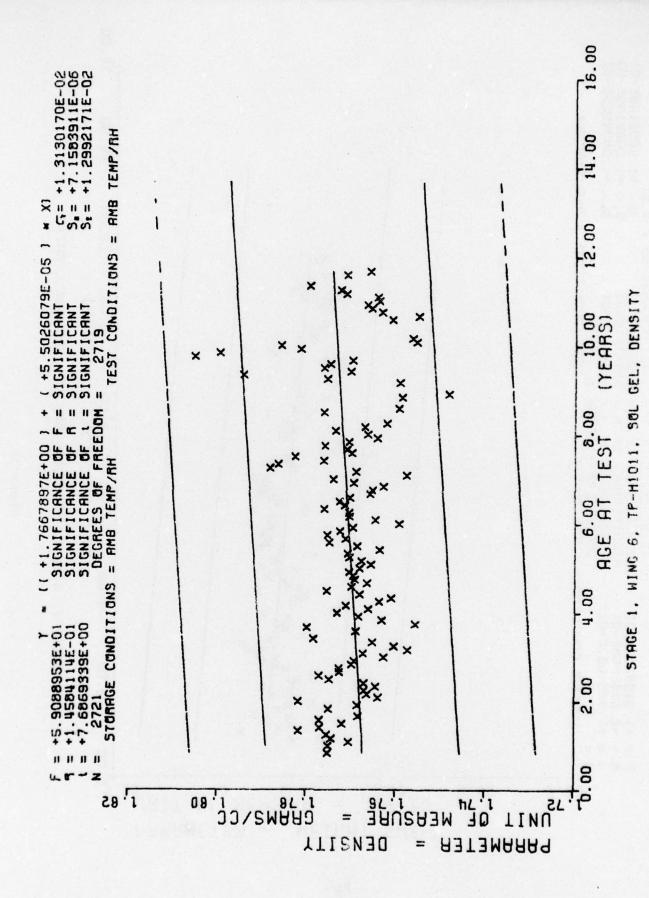




THE RESERVE OF SHIPS AND A STATE OF SHIPS



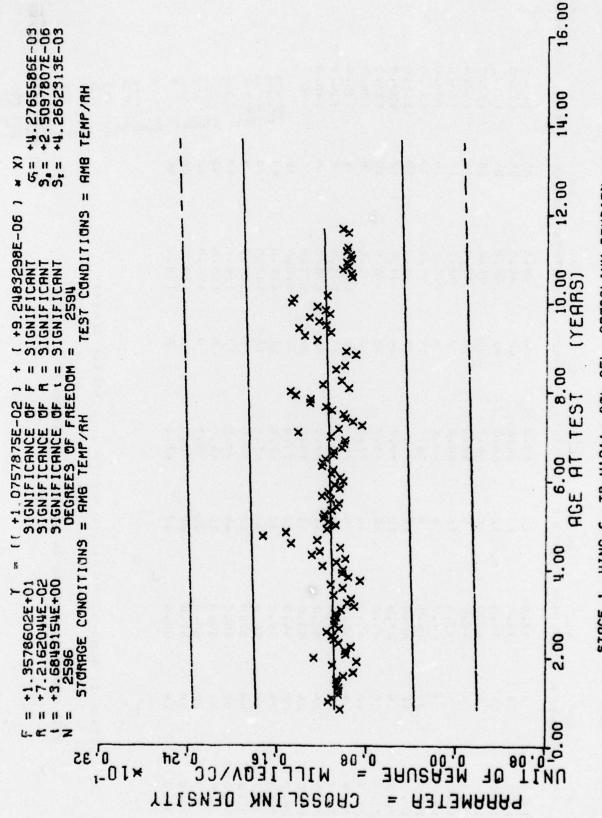




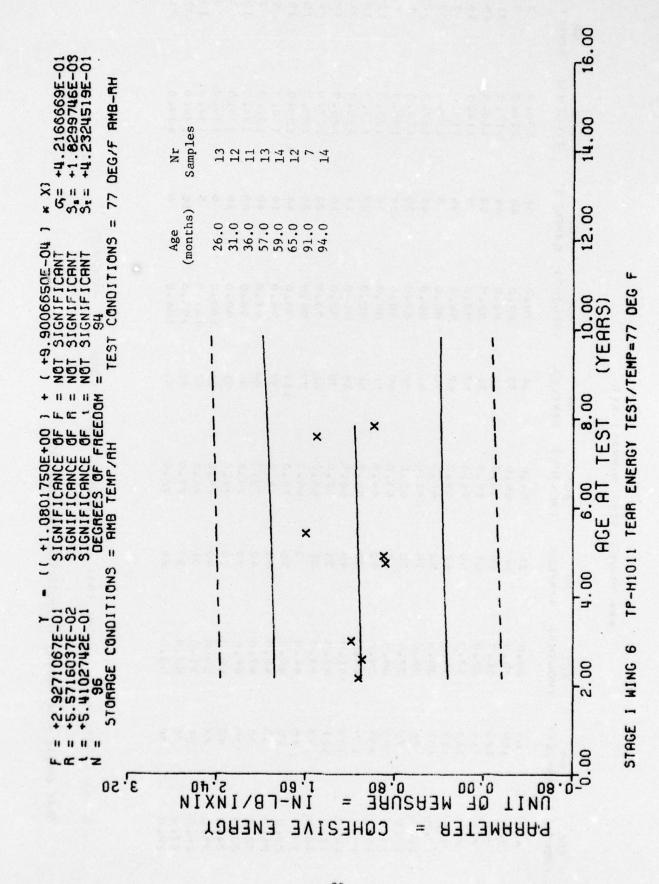
AGE	ž	AGE	N. C.	AGE	(LZ	AGF	2	AGF	64
(SETTING)	SAMPLES	(MONTHS)	SAMPLES	(BUNIHS)	SAMPLES	(MONTHS)	SAMPLES	(MULTHS)	SAMPLES
0.01	4	37.0	12	63.0	36	38.0	20	0.11	+ 4
12.0	4	38.0	12	0.49	48	80.0	28	120.0	8.8
13.0	¢	39.0	12	65.0	44	0.06	24	121.0	50
14.0	a	40.0	20	66.0	1.6	91.0	40	122.0	G.
15.0	ų	41.0	23	0.7.0	16	92.0	91	127.0	77
13.3	4	43.0	91	68.0	8	03.0	12	123.0	ε
17.0	7	44.0	4	0.69	T	94.9	16	129.0	940
13.0	20	45.0	B	20.0	123	95.0	20	130.0	16
10.0	15	46.0	12	71.0	32	0.96	12	1.51.0	16
30.3	30	47.0	16	72.0	24	97.0	12	132.0	54
22.0	α.	48.0	24	73.0	32	98.0	16	133.0	7
23.0	-	49.0	16	74.0	72	0.00	80	134.0	116
24.0	7	50.0	Ф	75.0	52	102.0	4	135.0	•
25.1	2.6	51.0	20	76.0	40	103.0	œ	139.0	12
26.0	26	52.0	99	77.0	32	106.0	80	140.0	16
27.0	24	53.0	72	78.0	32	1.07.0	80		
28.0	28	54.0	12	0.67	32	110.0	20		
29.0	54	55.0	32	0.08	32	1111.0	44		
30.0	28	56.0	30	81.0	15	112.0	20	0	
31.0	44	57.0	12	92.0	8	113.0	80		
32.0	55	56.0	40	83.0	12	114.0	48	Sale from	
35.0	36	59.0	20	94.0	α.	115.0	48		
74.0	28	60.0	28	0.53	6	116.0	15		
45.0	52	61.0	32	86.0	4	117.0	20	the state of	
30.0	5.4	65.0	4.0	87.0	8	118.0	99	101	
								-	

STAGE 1. WING 6. TO-HICII. SCL. GFL. CRUSSLINK DENSITY

This sample size summary is applicable to figure 57



STAGE 1, WING 6, TP-HID11, SOL GEL, CROSSLINK DENSITY



*** SAMPLE SIZE SUMMARY ***

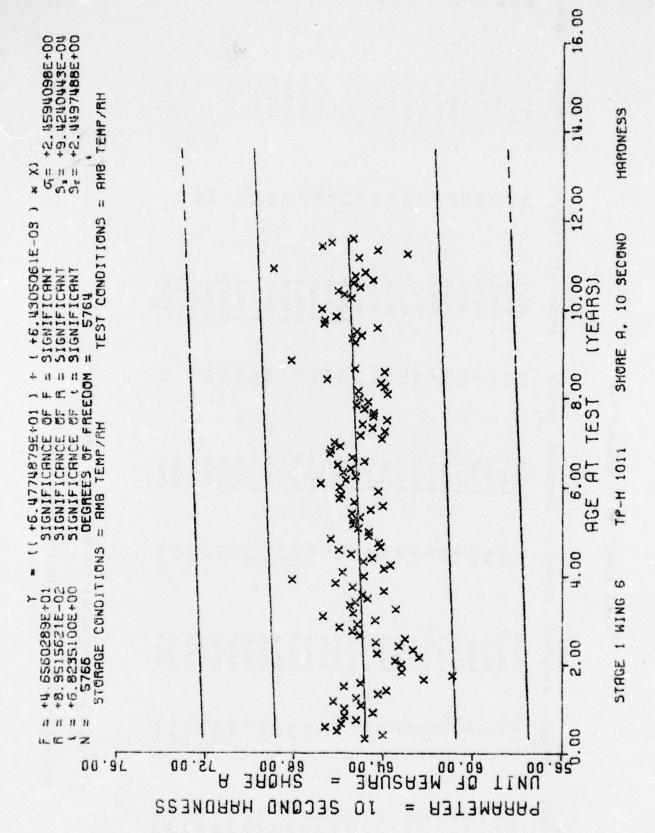
α 2	SPAPLES	5	10	21	45	15	P)	. 33	33	v	v	12	12	27	18	24	15	15	6	m	18	m	3	18	. 52	21
AGE	(PENTHS)	106.0	111.0	112.0	113.0	110.0	115.0	116.0	117.0	118.0	120.0	123.0	124.0	125.0	126.0	127.0	128.0	129.0	130.0	131.0	134.0	135.0	1 16.0	137.0	1 38.0	139.0
ž	SAMPLES	31	48	64	50	S	35	80	46	30	38	30	37	16	16	23	56	44	14	40	28	91	9	S	91	9
AGE	(MCNTHS)	79.0	80.0	81.0	92.0	93.0	84.0	85.0	86.0	87.0	98.0	0.68	0.06	91.0	92.0	93.0	0.46	95.0	0.96	0.76	98.0	0.66	100.0	101.0	103.0	104.0
α Z	SAMPLES	54	73	48	17	57	67	7.0	. 51	9	69	58	56	45	30	99	77	110	37	99	36	16	64	62	72	19
AGE	(MCNTHS)	54.0	55.0	26.0	57.0	58.0	59.0	0.09	61.0	62.0	63.0	64.0	65.0	0.99	67.0	0.89	0.69	70.0	71.0	72.0	73.0	74.0	75.0	76.0	77.0	78.0
2	SANDLES	36	99	99	67	66	47	52	92	32	57	40	32	45	33	31	3	32	63	04	20	28	40	16	82	24
₽ GF	(MONTHS)	29.0	30.0	31.0	32.0	33.0	34.0	35.0	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
02	SAMMES	62	108	123	114	114	1117	108	126	7.5	60	104	100	168	121	63	9 4	25	35	30	35	42	24	54	36	36
464	MONTHS)	4.0	0.5	0.00	7.0	8.0	0.0	10.0	11.0	12.0	13.0	14.0	1.5.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	27.0	28.0

STAGE 1 WING 6 TP-H 1011 SHOPE A. 10 SECOND

This sample size summary is applicable to figure 59

HAPDNESS

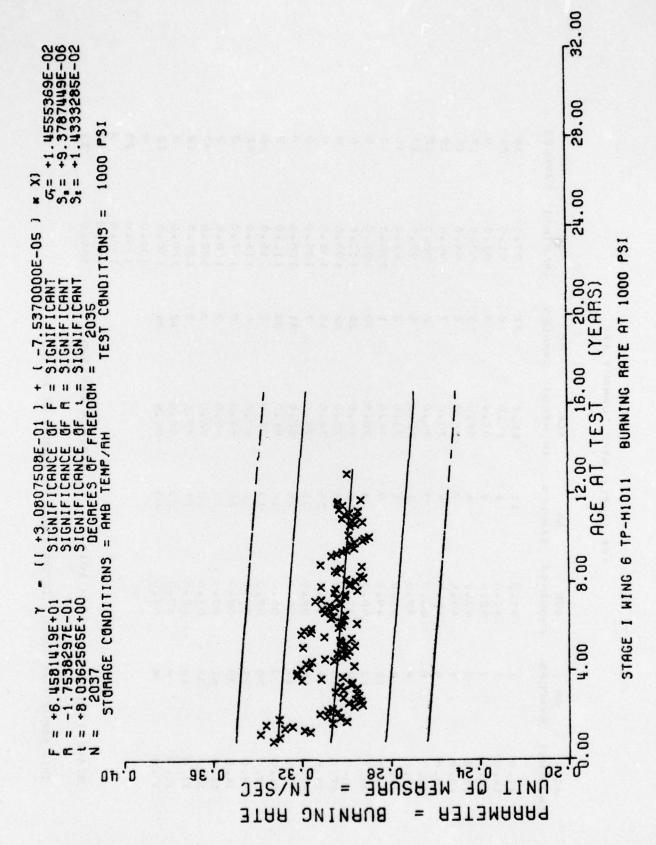
- 86 -



*** SAMPLE SIZE SUMMARY ***

STAGE I WING 6 TP-HIOII BURNING RATE AT 1000 PSI

This sample size summary is applicable to figure 60



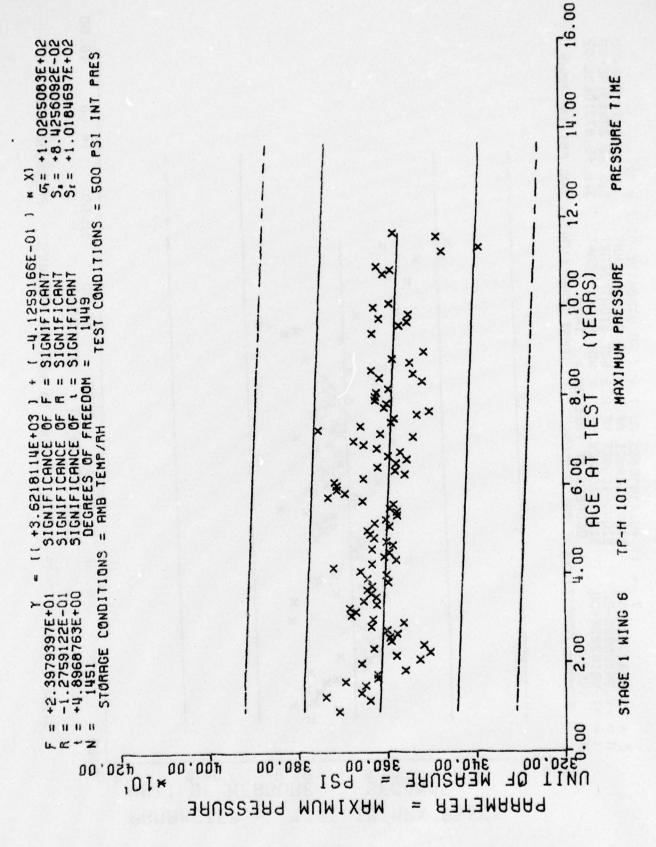
*** SAMPLE SIZE SUMMARY ***

the state of the s

AGE	X X	AGE	C: V	AGE	a N	AGE	N.N.
(MONTHS)	SAMPLES	(MUNTHS)	SAMPLES	(MENTHS)	SAMPLES	(MUNTHS)	SAMPLES
11.0	-	40.0	Ξ	65,0	27	0.06	36
14.0	-	41.0	4	66.0	18	91.0	54
15.0	-	42.0	0	67.0	80	92.0	6
15.0	S	43.0	4	68.0	5	93.0	17
18.0	-	44.0	7	0.59	4	94.0	15
19.0	4	45.0	4	20.07	7	0.36	19
20.0	S	46.0	£	71.0	2	0.96	12
21.0	4	47.0	2	72.0	9	0.76	17
22.0	4	48.0	1	73.0	N	0.86	15
24.0	10	49.0	6	74.0	-	100.0	9
25.0	13	50.0	4	75.0	30	101.0	6
26.0	12	51.0	14	76.0	26	102.0	9
27.0	18	52.0	18	77.0	22	103.0	9
28.0	18	53.0	35	78.0	13	105.0	6
29.0	25	54.0	31	19.0	7	106.0	9
30.0	12	55.0	25	80.0	21	108.0	3
31.0	33	56.0	18	81.0	24	113.0	3
32.0	39	57.0	19	82.0	7	115.0	36
33.0	51	58.0	16	0.55	6	116.0	42
34.0	33	29.0	24	84.0	6	117.0	3
35.0	41	60.0	13	85.0	Э	118.0	E .
36.0	33	61.0	10	66.0	3	120.0	39
37.0	10	62.0	17	67.0	3	121.0	12
33.0	2	63.0	20	88.0	12	129.0	E
39.0	4	64.0	4.0	0.68	50	130.0	. 15
						131.0	•
						135.0	23
						136.0	3
						139.0	12
STAGE	1 WING 6	TP-H 1011		MAXINUM PRESSURE	SSURE	140.0	12
The same of the same of						September 1	A topological and the second second second

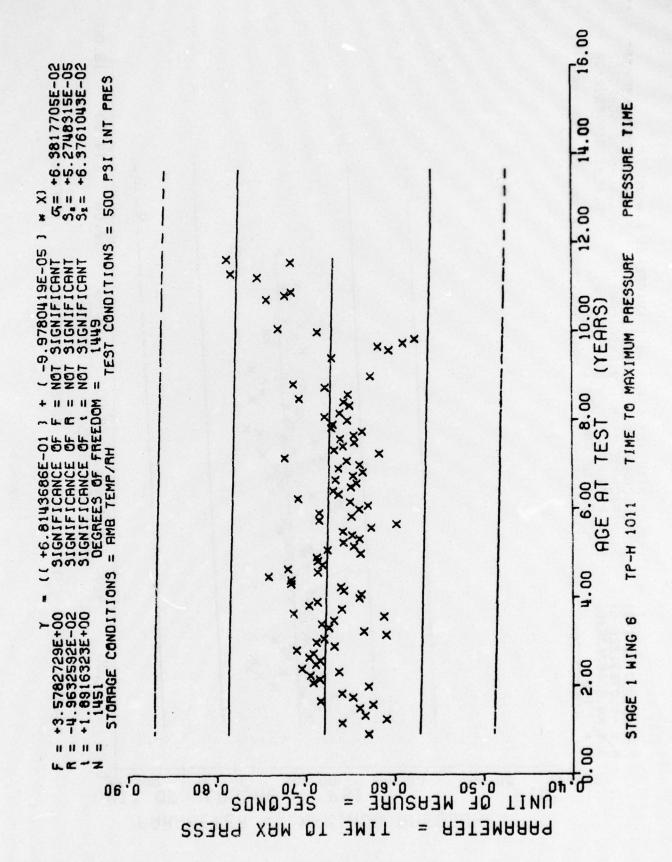
This sample size summary is applicable to figures 61 and 62

wind the Kind of a billion of the company of the



A STATE OF THE PARTY OF THE PAR

Figure 61

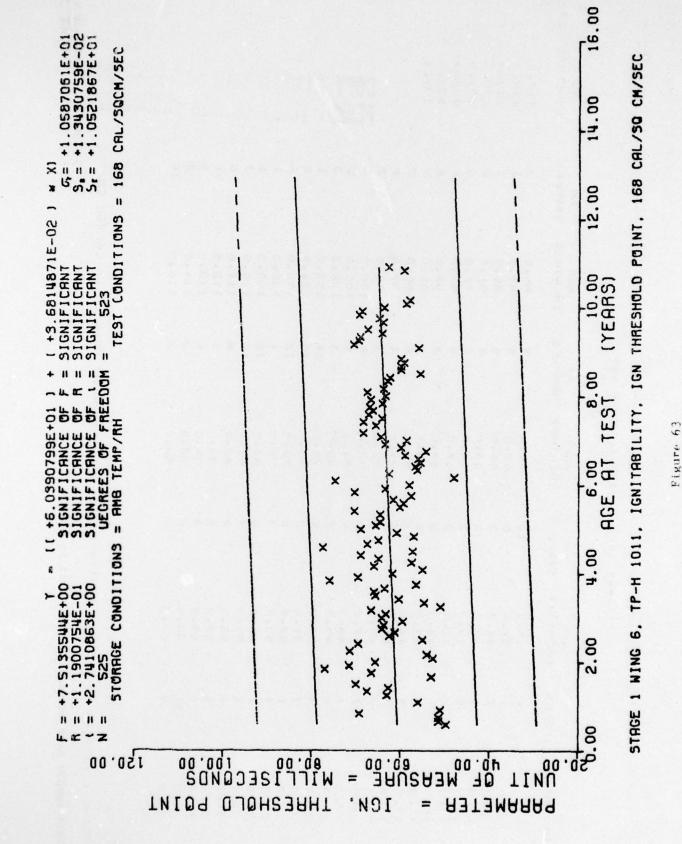


** SAMPLE SIZE SUMMARY ***

AGE	GN O	AGE	AN A	AGE	NR CAMOLES	AGE	SANDIAS	AGE	ST HAND
(Strong)	Callant	CHINDE		COLL NOW!	SAMPLES	Company		(design in 3)	
7.0	7	36.0	12	61.0	3	88.0	Е	117.0	٤
3.0	9	37.0	÷	62.0	n	89.0	4	113.0	1.0
0.0	r ;	38.0	E)	64.0	æ	0.06	7	113.0	71
10.0	3	39.0	2	0.50	ഗ	0.10	80	120.0	56
111.0	-	40.0	3	0.99	y	05.0	3	121.0	oʻ
13.0	N	41.0	n	67.0	6	93.0	14	122.1	-
15.0		42.0	m	58.0	3	0.46	. 9	130.0	*
16.0	د	43.0	4	0.69	S	0.36	2	1 41.0	9
17.0	Е	44.0	10	70.0	9	0.36	Cd		
18.0	2	45.0	2	71.0	4	0.70	9		
23.3	2	46.0	-	72.0	r	0.86	2		
21.0	<	47.0	5	73.0	4	100.0	1	C	
22.0	-	44.0	5.	74.0	-	101.0	2	12 073	
23.0	¥	49.0	63	75°C	ю	1 02 • 0	٣	* X	
24.0	23	50.0	4	76.0	10	103.0	-	-	
25.0	ĸ	51.0	2	77.0	01	104.0	2	4	
26.3	1	52.0	4	78.0	12	105.0	3		
27.0	3	53.0	2	0.67	4	106.0	-		
2.9.0	2	54.0	7	80.0	10	109.0	-	100	
10.0	-	55.1	2	81.0	12	110.0	3		
31.0	7	6.99	2	82.0	4	111.0	9		
32.0	S	57.0	2	83.0	9	112.0	11		
33.0	9	53.0	3	34.0	4	113.0	4		
34.0		59.0	9	85.0	2	114.0	2		
35.0	2	60.09	9	36.0	2	116.0	19	OFF	
								Di Ol	
TAGE I WE	WING 6. TP-	TP-H 1011, IGN	IGNI FASTLITY.		IGN THRESHOLD POINT.		168 CAL /SQ CM/SEC	0	

STAGE I MING 6, TP-H 1011, IGNITAPILITY, IGN THRESHOLD POINT, 168 CALZSO CM/SEC

This sample size summary is applicable to figure 63

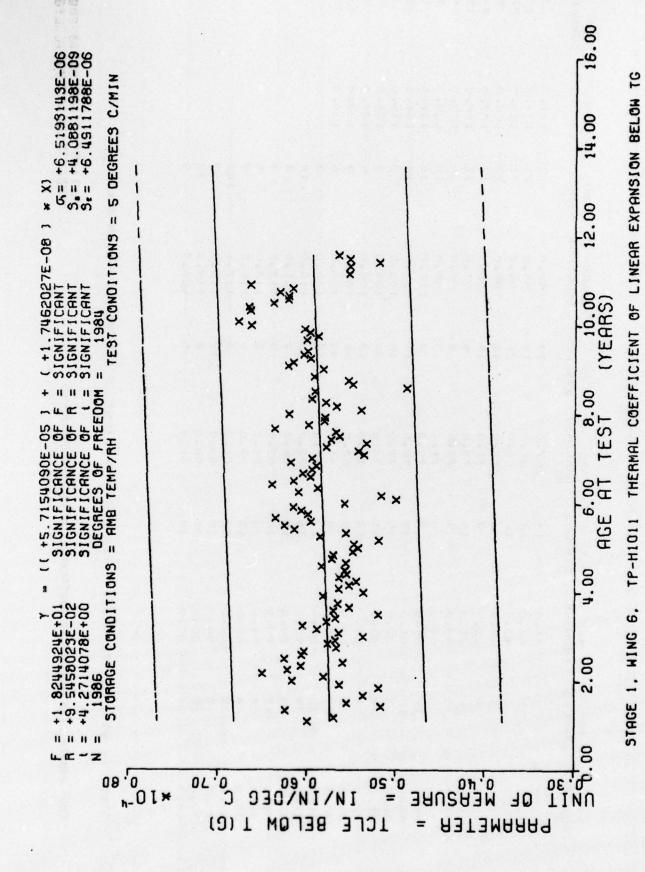


*** SAMPLE SIZE SUMMANY ***

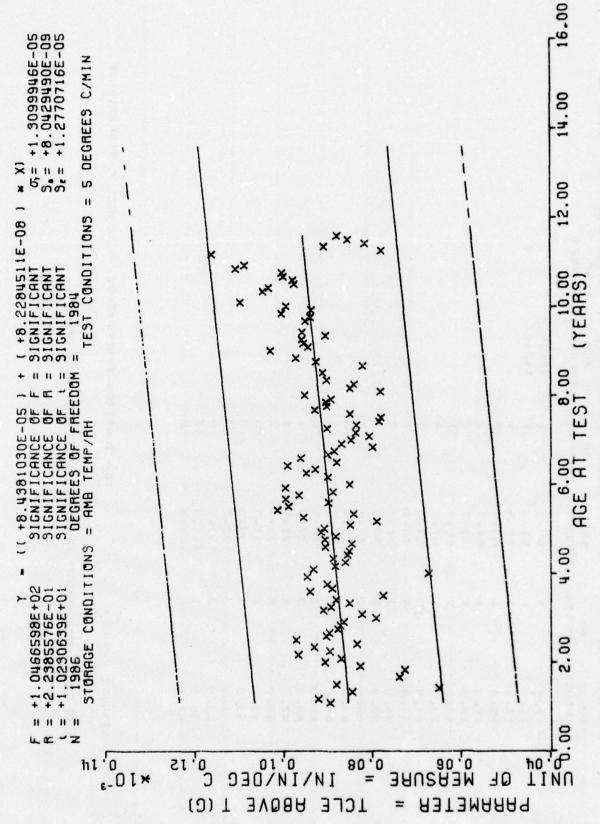
13.0 3 41.0 13 67.0 12 15.0 5 43.0 12 67.0 12 17.0 3 42.0 12 67.0 12 17.0 3 45.0 9 70.0 12 18.0 9 45.0 9 71.0 18 20.0 6 47.0 15 72.0 6 23.0 6 47.0 15 72.0 6 24.0 6 47.0 15 72.0 16 25.0 9 44.0 3 72.0 16 25.0 9 44.0 3 74.0 3 26.0 9 44.0 6 74.0 3 27.0 9 44.0 6 77.0 18 27.0 24 51.0 3 77.0 18 28.0 24 55.0 3 80.0 12 29.0 27 24.0 3 80.0 3 38.0 33 53.0 <th></th> <th>(MONTHS)</th> <th>SAMPLES</th> <th>AGE (MONTHS)</th> <th>SAMPLES</th> <th>AGE (MCNTHS)</th> <th>SAMPLES</th> <th>AGE (MONTHS)</th> <th>SAMPLES</th> <th>AGE (MENTHS)</th> <th>SAMPLES</th>		(MONTHS)	SAMPLES	AGE (MONTHS)	SAMPLES	AGE (MCNTHS)	SAMPLES	AGE (MONTHS)	SAMPLES	AGE (MENTHS)	SAMPLES
14.0 3 42.0 12 68.0 18 94 17.0 3 44.0 0 76.0 12 94 18.0 6 47.0 15 72.0 18 96 20.0 6 47.0 15 72.0 6 97 20.0 6 49.0 3 73.0 6 97 24.0 6 49.0 6 74.0 3 98 24.0 7 72.0 6 97 98 100 25.0 49.0 6 74.0 3 100 9 100 24.0 12 51.0 3 75.0 10 100 9 100 25.0 16 51.0 3 75.0 1		13.0	3	41.0	1.8	67.0	12	92.0	E	131.7	•
15.0 e 43.0 12 65.0 24 17.0 3 44.0 0 76.0 12 95 20.0 6 45.0 9 71.0 18 96 22.0 9 46.0 9 71.0 18 96 22.0 9 46.0 15 72.0 6 97 23.0 6 47.0 15 72.0 6 97 24.0 12 76.0 19 106 25.0 9 76.0 10 106 26.0 9 76.0 10 106 26.0 9 76.0 10 106 26.0 9 76.0 10 106 27.0 24 55.0 30 76.0 10 29.0 24 55.0 33 80.0 24 108 29.0 27 56.0 33 80.0 27 82.0 10 31.0 33 59.0 15 94.0 9 111 36.0 24 62.0 15 96.0 9 111 36.0 24 62.0 15 96.0 9		14.0	m	42.0	12	68.0	18	93.0	21	124.0	12
17.0 3 44.0 0 70.0 12 95 20.0 6 45.0 15 72.0 6 9 71.0 18 96 20.0 9 44.0 15 72.0 6 77.0 18 9 77.0 9 77.0 100.0 9 100.0 100.0 100.0 100.0		16.0	o	43.0	1.2	0.69	7 c	94.0	16	125.0	27
18.0 9 45.0 9 71.0 18 96 20.0 6 47.0 15 72.0 6 97 23.0 6 49.0 6 74.0 3 9 24.0 12 50.0 6 77.0 9 100.0 25.0 16 51.0 39 76.0 19 100.0 26.0 16 51.0 39 76.0 19 100.0 26.0 24 55.0 45 77.0 18 103.0 26.0 24 55.0 33 80.0 24 104.0 26.0 24 55.0 33 80.0 24 108.0 30.0 27 82.0 30 82.0 109.0 31.0 33 57.0 27 82.0 12 31.0 34.0 35 60.0 9 111 35.0 33 59.0 15 9 111 35.0 34.0 15 66.0 15 9 11		17.0	5	44.0	9	76.0	12	95.0	27	126.0	6
20.0 6 47.0 15 72.0 6 97 23.0 6 48.0 3 73.0 3 98 24.0 12 51.0 6 74.0 3 9 24.0 12 51.0 39 76.0 19 100 25.0 16 51.0 39 76.0 19 100 25.0 24 52.0 45 77.0 18 103 26.0 24 55.0 33 80.0 24 104 29.0 27 56.0 30 81.0 39 108 30.0 27 56.0 30 81.0 39 108 31.0 33 57.0 27 82.0 12 109 33.0 33 59.0 15 85.0 16 9 111 34.0 36 60.0 15 86.0 9 111 35.0 36 60.0 15 86.0 9 111 35.0 36 60.0 15 86.0 9 116 36.0 24 62.0 15 86.0 9 117 36.0 2		18.0	6	45.0	6	71.0	18	0.96	12	127.0	12
22.0 9 48.0 3 73.6 3 99 23.0 6 49.0 6 74.0 3 99 24.0 12 50.0 9 75.0 9 100 25.0 16 51.0 39 75.0 19 102 26.0 24 52.0 45 77.0 18 103 27.0 24 55.0 33 80.0 24 103 29.0 24 55.0 33 80.0 24 105 29.0 27 86.0 30 81.0 30 109 33.0 27 56.0 36 82.0 12 109 33.0 33 59.0 15 82.0 12 109 34.0 34 42 60.0 3 11 11 34.0 34 62.0 15 86.0 9 11 35.0 35 59.0 15 86.0 9 11 35.0 24 62.0 <td< td=""><td></td><td>20.0</td><td>4</td><td>47.0</td><td>15</td><td>72.0</td><td>9</td><td>97.0</td><td>12</td><td>128.0</td><td>8.1</td></td<>		20.0	4	47.0	15	72.0	9	97.0	12	128.0	8.1
23.0 6 49.0 6 74.0 3 9 24.0 12 50.0 9 76.0 19 100 25.0 18 51.0 39 76.0 19 102 26.0 9 52.0 45 77.0 18 103 27.0 24 53.0 45 77.0 18 103 29.0 21 54.0 15 79.0 12 104 29.0 27 80.0 30 31.0 24 106 30.0 27 56.0 30 31.0 39 108 31.0 33 57.0 27 82.0 12 94.0 9 111 33.0 34.0 42 60.0 15 82.0 18 110 9 111 34.0 24 62.0 15 87.0 6 117 117 118 35.0 24 62.0 15 89.0 12 6 117 117 36.0 24	-	22.0	6	48.0	3	73.6	£	0.86	36	153.0	9
12 50.0 9 75.0 9 100 16 51.0 39 75.0 19 103 24 52.0 45 77.0 18 103 24 53.0 45 77.0 18 103 24 55.0 45 77.0 18 103 27 56.0 33 80.0 24 104 33 57.0 27 82.0 24 105 33 58.0 36 82.0 12 109 33 58.0 15 82.0 12 109 33 58.0 15 82.0 12 109 34 60.0 15 84.0 9 111 35 61.0 15 85.0 9 113 36 64.0 15 90.0 9 114 36 64.0 15 90.0 9 119 37		2.3.0	9	49.0	9	74.0	В	0.00	12	130.0	0
26.0 18 51.0 39 76.0 19 103 26.1 9 52.0 45 77.0 18 103 27.0 24 53.0 45 77.0 18 103 29.0 24 53.0 33 80.0 24 105 29.0 24 55.0 33 80.0 24 105 31.0 27 56.0 30 81.0 24 105 31.0 33 57.0 27 82.0 12 109 33.0 33 59.0 15 84.0 9 111 34.0 42 60.0 15 85.0 9 111 35.0 24 62.0 15 87.0 9 116 35.0 15 64.0 15 89.0 12 119 36.0 24 62.0 15 90.0 9 119 40.0 15 89.0 9 119 40.0 15 90.0 9 12 40.0 17 9 10 9 40.0 17 9 10 9 40.0 17 9 <td></td> <td>24.0</td> <td>12</td> <td>56.0</td> <td>6</td> <td>75.0</td> <td>σ</td> <td>100.0</td> <td>. 15</td> <td>131.0</td> <td>9</td>		24.0	12	56.0	6	75.0	σ	100.0	. 15	131.0	9
26.7 9 52.0 45 77.0 18 103 27.0 24 53.0 51 78.0 30 104 29.0 24 55.0 33 80.0 24 105 29.0 24 55.0 33 80.0 24 106 30.0 27 56.0 30 81.0 24 106 31.0 33 57.0 27 82.0 12 109 33.0 33 59.0 15 82.0 12 109 34.0 42 60.0 15 86.0 9 111 35.0 24 62.0 15 86.0 9 116 35.0 24 62.0 15 86.0 9 116 36.0 24 62.0 12 89.0 12 116 36.0 36.0 15 64.0 15 89.0 12 179 40.0 42 64.0 15 89.0 9 116 36.0 15 64.0 15 89.0 9 117 40.0 15 89.0 9 19 19 40.0 16		25.0	18	51.0	39	76.6	- 19	102.0	12	134.0	54
27.0 24 53.0 51 78.0 30 104 29.0 21 54.0 15 79.0 12 105 29.0 24 55.0 33 80.0 24 106 30.0 27 56.0 33 80.0 24 106 31.0 27 56.0 27 82.0 12 109 32.0 33 59.0 15 82.0 12 109 34.0 42 60.0 15 85.0 9 111 35.0 24 62.0 15 87.0 9 116 36.0 15 64.0 15 89.0 12 116 36.0 15 64.0 15 89.0 12 116 36.0 16 90.0 9 119 39.0 12 65.0 21 90.0 9 120 40.0 12 13 9 119 9 119		26.1	6	52.0	45	77.0	18	103.0	3	135.0	m
24 54.0 15 79.0 12 105 24 55.0 33 80.0 24 106 27 56.0 30 81.0 24 106 33 57.0 27 82.0 12 109 39 58.0 36 82.0 12 109 33 59.0 15 84.0 9 111 42 60.0 15 86.0 9 111 24 62.0 15 87.0 6 116 38 63.0 12 89.0 12 116 15 64.0 15 89.0 3 117 12 55.0 21 90.0 9 120 20 41.0 94.0 94.0 9 120		27.0	24	53.0	19	78.0	30	104.0	3	136.0	3
24 55.0 33 80.0 24 106 27 56.0 30 81.0 39 108 33 57.0 27 82.0 42 109 39 58.0 36 82.0 42 109 33 59.0 15 84.0 9 111 42 60.0 15 85.0 9 111 24 62.0 15 87.0 6 116 38 63.0 12 89.0 12 118 15 64.0 15 89.0 3 117 12 55.0 21 90.0 9 120 20 41.0 9 120 12		28.0	21	54.0	-15	79.0	1.2-	105.0	6	137.0	9
27 56.0 30 81.0 39 108 33 57.0 27 82.0 12 109 39 58.0 36 83.0 18 110 33 59.0 15 84.0 9 111 42 60.0 15 85.0 9 111 24 62.0 15 87.0 6 115 38 63.0 12 89.0 12 118 15 64.0 15 89.0 12 118 12 55.0 21 90.0 9 120 20 41.0 94.0 9 120		29.0	24	55.0	33	0.08	54	106.0	0	1 33.0	23
33 57.0 27 82.0 12 109 33 59.0 36 83.0 18 110 33 59.0 15 84.0 9 111 36 61.0 9 86.0 9 113 24 62.0 15 87.0 6 116 38 63.0 12 88.0 12 118 12 65.0 21 90.0 9 120		30.0	27	56.0	30	81.0	36	108.0	Ģ	1.59.0	33
39 58.0 36 83.0 18 110 33 59.0 15 94.0 9 111 42 60.0 15 85.0 9 111 36 61.0 9 112 24 62.0 15 87.0 6 115 38 63.0 12 89.0 12 118 15 64.0 15 89.0 12 118 12 55.0 21 90.0 9 119 20 41.0 9 120 120	-	31.0	33	57.0	27	82.0	12	109.0	3		
33 59.0 15 84.0 9 111 36 60.0 15 85.0 9 112 24 62.0 15 87.0 6 116 38 63.0 12 88.0 3 117 15 64.0 15 89.0 12 118 12 55.0 21 90.0 9 120		32.0	39	58.0	36	83.0	18	110.0	13		
42 60.0 15 65.0 9 112 36 62.0 15 87.0 9 1,13 24 62.0 15 87.0 9 1,13 38 63.0 12 68.0 3 117 15 64.0 15 89.0 12 118 12 55.0 21 90.0 9 119 24 66.0 12 91.0 9 120		33.0	33	59.0	15	84.0	0	1111.0	3		
36 61.0 9 86.0 9 113 24 62.0 15 87.0 6 116 38 63.0 12 68.0 3 117 15 64.0 15 89.0 12 118 12 55.0 21 90.0 9 120 24 66.0 12 91.0 9 120	-	34.0	42	60.0		95.0	- 6	112.3	.3		The second secon
24 52.0 15 87.0 6 116 38 63.0 12 £8.0 3 117 15 64.0 15 89.0 12 118 12 55.0 21 90.0 9 119 24 66.0 12 91.0 9 120		35.0	36	61.0	6	86.0	ō.	1,13.0	9		
38 64.0 12 £8.0 3 15 64.0 15 89.0 12 12 55.0 21 90.0 9		36.0	. 46	62.0	15	87.0	0	116.0	6		
15 64.0 15 89.0 12 12 55.0 21 90.0 9	-	37.0	38	63.0	1.2	68.0	3	117.0	102		
12 55.0 21 90.0 9		38.0	15	64.0	15	89.0	12	118.0	63		
94 66.0 12 91.0		39.0	12	65.0	21	0.06	6	119.0	12		
2. 0.00		40.0	24	0.99		61.6	6	120.0	6		

STAGE 1. WING 6. TP-HIOII THERMAL COFFFICIENT OF LINEAR EXPANSION BELOW TG

This sample size summary is applicable to flugres 64 and 65



Dis.



- 97 -

1

Ser.

*** SAMPLE SIZE SUMMARY ***

(MCNTHS)	SAMPLES	(MONTHS)	SAMPLES	(MCNTHS)	SAMPLES	
1.0	£ .	6.65		0.901	Q	
11.0	-	61.3	-	110.6	2	
13.0	1	62.0	1			
15.0	-	63.0	- 2			
16.0	-	64.3	r			
13.0	-	65.0	CI			
20.0	-2	66.0				And the second s
29.0	1	67.0	4			
34.0	10	0.69	4			
35.0	- S	70.0				
36.0	22	71.0	8			
37.0	12	72.0	1			
34.0	£	73.0	4			
40.0	* ?	75.0	2			
41.0	7)	76.0				
42.0	3	79.0	9	the state of the state of the state of		
45.0	3	87.0	-			
47.0	-	91.0	-			
48.0	- 2	95.0	3			And the second s
49.0	-	97.0	9			
50.0	3	0.66	E.			
51.0		102.0	3			
53.0	3	103.0	9			
56.0	-	104.0	3			
67.0	£	105.0	- 2	-	A series and the series of the series of the series of	

STAGE I WING 6

TGA IGNITION TEMPFRATURE, 9 DEGREE C RISE/MINUTE

This sample size summary is applicable to figures 66 and 67

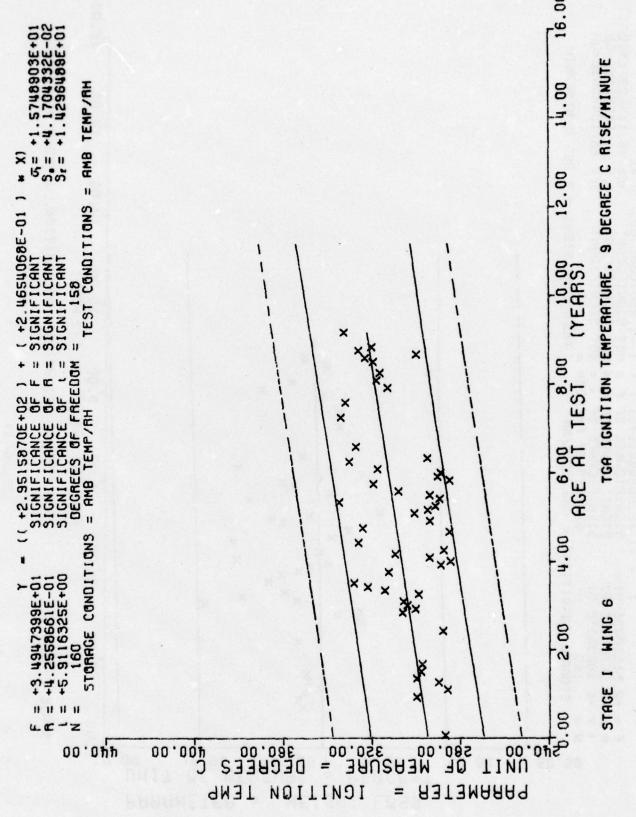
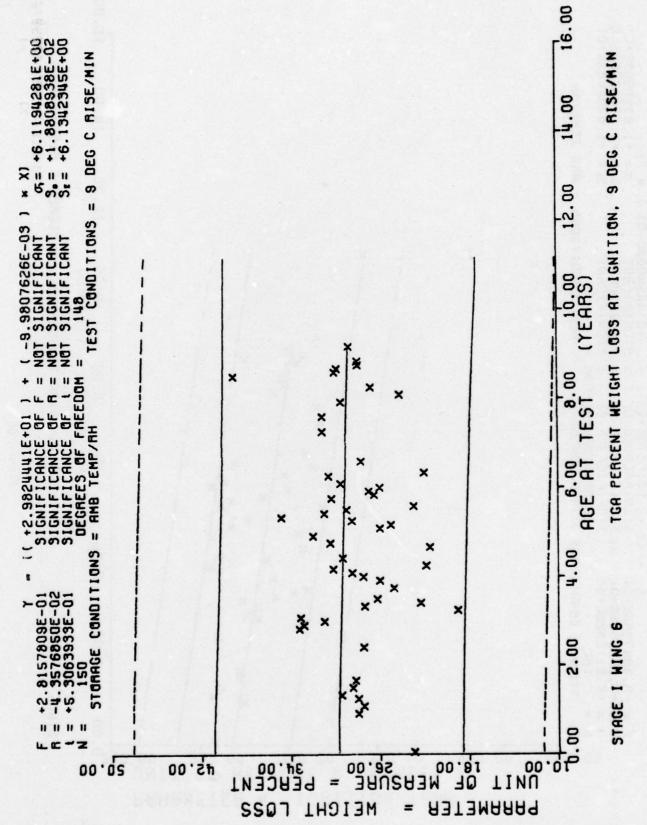


Figure 66



SAGE I WING 6 TGA X WT LCS

X WT LCSS AT 250 DFG C HOLD, 12 DEG RISE/MIN TO HOLD

This sample size summary is applicable to figure 68

in,

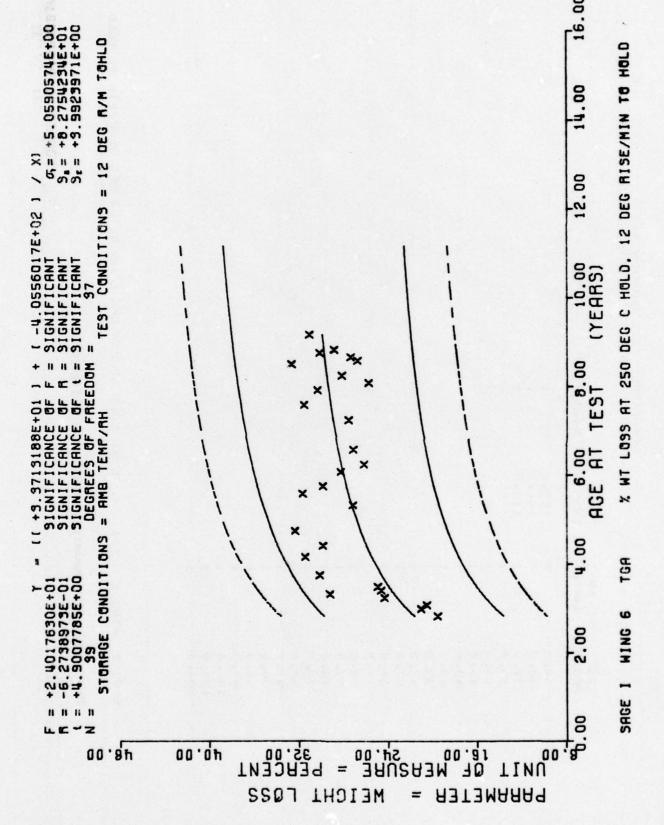


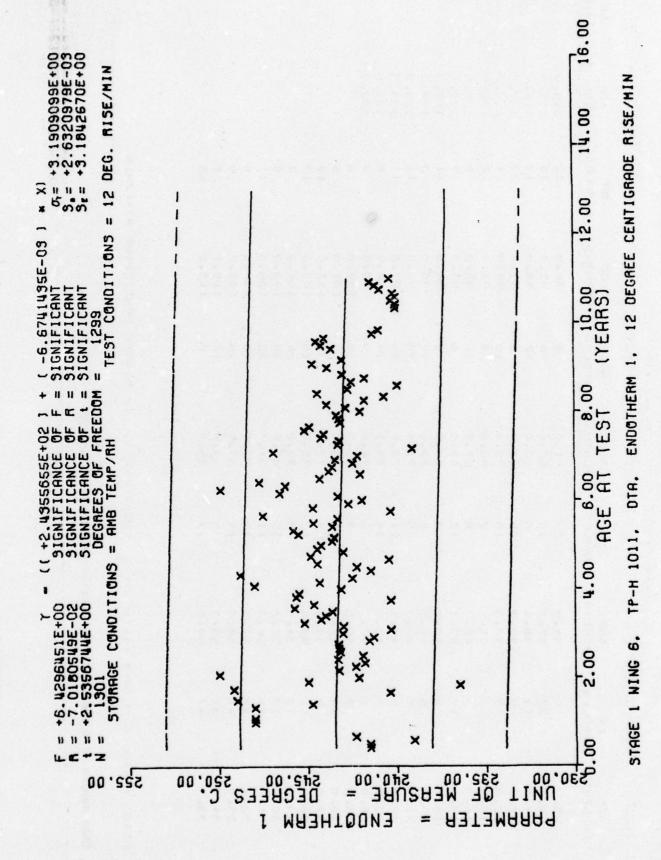
Figure 68

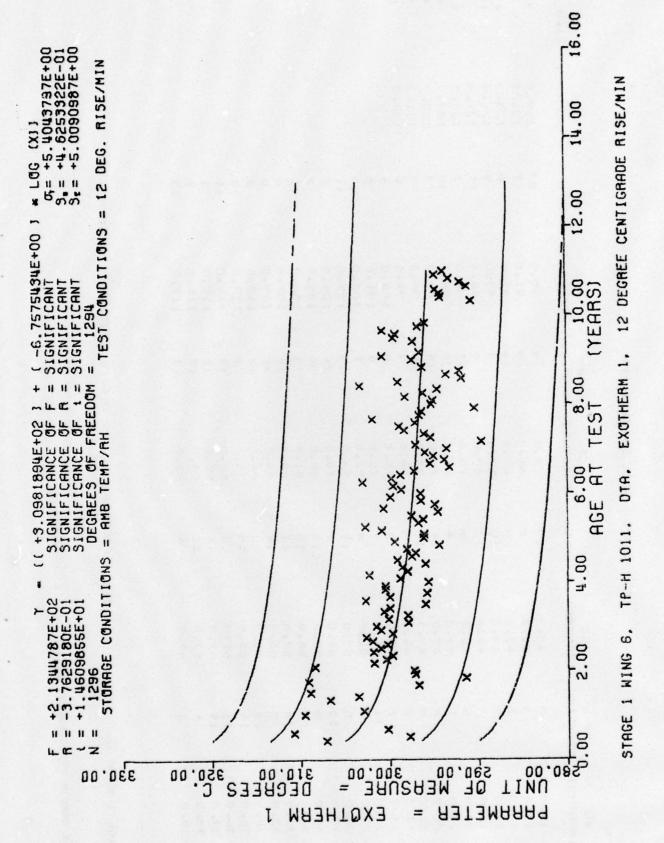
*** SAMPLE SIZE SUMMARY ***

AGE	N.	AGE	NA	AGF	C.Z.	VGF	ď	AGE	NF
(MCNTHS)	SAMPLES	(MONTHS)	SANCARS	(MCNTHS)	SAMPLES	(MONTHS)	SAMPLES	(MCNTHS)	S AMPLES
0.0	Ó	36.0	53	61.0	80	96.0	12	114.0	4 1
6.0	27	37.0	α-1	62.0	œ	97.0	15	115.0	15
7.0	-11	38.0	٤	63.0	12	98.0	12	116.0	3
8.0	0	39.0	S	0.40	2	89.0	23	117.7	13
12.0	m	40.0	15	55.0	01	0.00	24	118.0	38
13.0	n	41.0	2	66.0	σ	91.0	7	124.0	3
16.0	S	42.0	8	67.0	91	92.0	9	125.0	15
17.0	12	43.0	12	68.0	9	93.0	6	126.0	15
18.0	2	44.0	3	0.69	6	94.0	11	127.0	8
20.0	5	45.0	e	70.0	19	95.0	E	128.0	13
21.0	G	46.3	9	71.0	50	0.96	11	129.0	σ
22.0	ç	47.0	14	72.0	91	0.70	111	130.0	9
23.0	U.	48.0	14	73.0	14	98.0	œ	131.0	o
24.0	£	40.0	IO.	74.0	6	0.06	6	132.0	9
25.0	2	50.0	3	75.0	6	100.0	9		
26.0	14	51.0	2	76.0	8	101.0	S		
27.0	•	52.0	S	77.0	7	102.0	10		
28.0	-:-	53.0	13	78.0	91	103.0	12		
29.0	12	54.0	ac	19.0	24	104.0	2		
30.0	13	55.0	15	80.0	30	105.0	80		
31.0	20	56.3	111	81.0	2.3	106.0			
32.0	18	6.25	12	85.0	18	108.0	9		
33.0	-	58.0	14	83.0	56	109.0	6		
34.0	33	6.65	6	84.0	12	110.0	2		
35.7	17	60.3	1.7	85.0	8	113.0	18		

STAGE I WING 6. TP-H 1011, DTA, FNDCTHERM 1. 12 DEGREE CENTIGRADE RISEZMIN

This sample size summary is applicable to figures 69 and 70



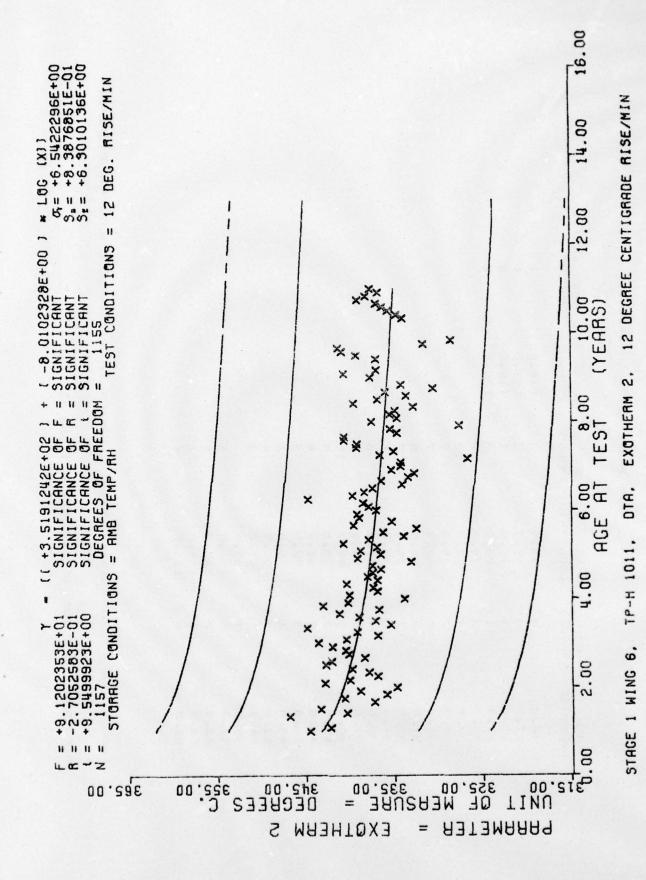


*** SAMPLE SIZE SUMMARY ***

5) SAMPLES (3 3 3 4 5 6 5 6 7 11 10	40.0			Z	The state of the s			
	0.0	SAMPLES	(MCNTHS)	SAMPLES	(MUNTHS)	SAMPLES	(MONTHS)	SAMPLES
		13	65.0	•	6.06	23	118.0	36
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	41.0	2	96.0	6	91.0	7	124.0	8
7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	42.0	8	67.0	91	92.0	9	125.0	15
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	3.0	10	68.0	9	93.0	6	126.0	14
~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	0.04	3	0.69	0	0.46	11	127.0	3
	45.0	9	20.0	12	0.56	ю	123.0	11
~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	0.0	9	71.0	20	0.96	10	129.0	<b>a</b> 0
2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	0.	14	72.0	14	0.76	10	130.0	9
* % I & & O O	0.8	14	73.0	14	98.0	80	131.0	0
2 1 1 2 2 0 C C C C C C C C C C C C C C C C C	0.6	S	74.0	σ	0.66	6	132.0	•
11 8 9 0 0	0.0	3	75.0	6	100.0	9		
œ a O (	6.1	2	76.0	œ	101.0	S		
2 O C	0.5	4	77.0	7	102.0	10		
10	3.0	11	78.0	15	103.0	11		
•	0.1	7	79.0	54	104.0	2		
•	55.0	15	0.08	30	105.0			
31.0 13 56	56.0	10	81.0	23	106.0			
18	57.0	11	82.0	18	108.0	9		
33.0 7 58	58.0	14	83.0	22	109.0	6		
26	59.0	6	84.0	12	110.0	2		
14	0.09	15	95.0	7	113.0	18		
24	61.0	æ	86.0	12	114.0	41		
14	62.0	60	87.0	15	115.0	15		
4 0	63.0	12	88.0	12	116.0	m		
m	64.0	4	89.0	23	117.0	13		

STAGE 1 WING 6. TP-H 1011, DIA, EXOTHERM 2. 12 DEGREE CENTIGRADE RISEZMIN

This sample size summary is applicable to figure 71

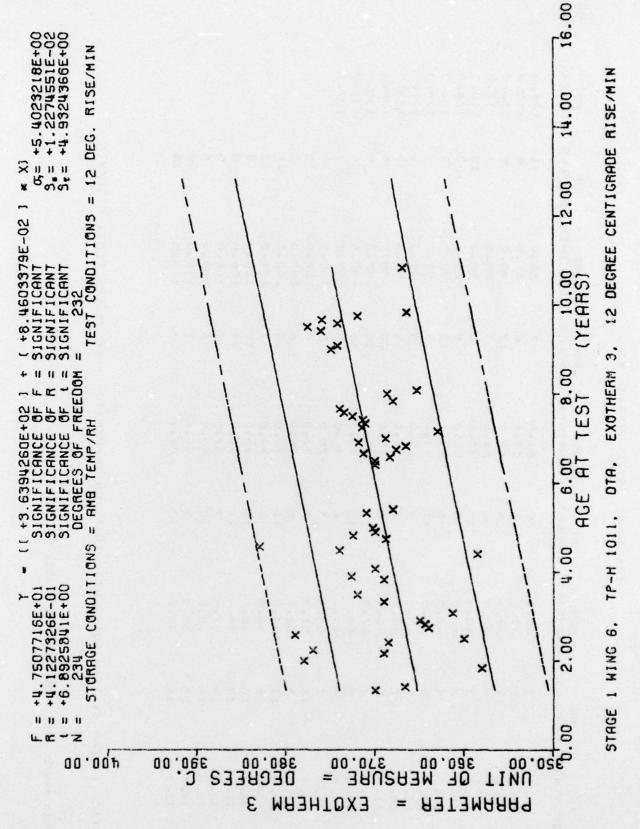


*** SAMPLF SIZF SUMMARY ***

AGE	C.EX	AGE	Č.	AGE	α Z
(MONTHS)	SAMPLES	( MONTHS)	STAPLES	(MCNTHS)	SAMPLES
16.0	-	64.0	N	116.0	-
	m	65.0	2	117.0	
-	-	77.0	-	118.0	N
	-	78.0	3	1 30.0	2
26.0	~	0.67	18		
27.0	1	80.0	12		
29.0	2	81.0	6		
30.0	6	82.0	7		
31.0	-	A3.1	80		
33.0	-	34.0	7		
34.0	ស	36.0	-		
35.0	4	97.0	9		
37.0	3	88.0	œ		
40.0	S	89.0	16		
42.0	m)	0.00	6		
46.0	~	91.0	4		
47.0	В	92.0	2		
49.0	-	34.0	2		
53.0	~	6.96	9		
54.0	-	0.79	3		
55.0	-	108.0	3		
57.0	S	109.0	4		
58.0	2	113.0	8		
89.0	9	114.0	21		
60.0	4	115.0	*		

STAGE 1 WING 6. TP-H 1011. DTA. EXOTHERM 3. 12 DEGREE CENTIGRADE PISE/MIN

This sample size summary is applicable to figure 72



*** SAMPLE SIZE SUMMARY ***

AG:	2	A G Fi	Q.	AGE	ŭ.	AGE	ž	AGE	α×
(MUNTHS)	SANDLES	(MONTHS)	SAMPLES	(MONTHS)	SAMPLES	(MONTHS)	SAMPLES	(HIGNTHS)	SANDLES
5.0	C	36.0	56	61.0	7	86.0	=	114.0	50
	27	37.0	14	62.0	9	87.0	6	115.0	11
7.0	11	38.0	9	63.0	12	88.0	S	116.0	~
8.3	0	39.0	S	64.0	3	89.0	1	117.9	12
12.0	<b>F</b> )	40.0	10	65.0	80	0.06	15	118.0	36
13.0	8	41.0	2	0.99	8	91.0	3	124.0	3
16.0	7	42.0	S	67.0	13	92.0		125.0	15
17.0	6	43.0	11	68.0	9	93.0	6	126.0	15
18.0	~	44.0	E	0.69	6	94.0	6	127.0	2
20.0	2	45.0	S	70.0	19	95.0	3	128.0	13
21.0	S	46.0	4	71.0	20	0.96	2	129.0	6
22.0	2	47.0	11	72.0	16	97.0	4	130.0	•
23.0	S.	48.3	13	73.0	14	98.0	9	131.0	o
24.0	5	49.0	4	74.0	0	0.66	m	132.0	9
25.0	~	50.0	m	75.0	6	100.0	•		
26.9	12	51.0	~	76.0	80	101.0	5	1	
27.0	80	52.0	ທ	77.0	9	102.0	80		
28.0	==	53.3	11	78.0	13	103.0	11		
29.0	10	54.0	œ	19.0	7	104.0	-		
30.0	10	55.0	15	0.08	19	105.0	S		
31.0	19	56.3	11	81.0	14	106.0	60		
32.0	18	57.0	7	82.0	11	108.0	3		
33.0	10	58.0	12	83.0	18	109.0	S		
34.0	28	59.0	ь	84.0	7	110.0	2		
35.0	14	0.09	12	85.0	æ	113.0	10		

STAGE I WING 6. TP-H 1011, DTA, IGNITION TEMPEPATURE, 12 DEGREE CENT. PISEZMIN

This sample size summary is applicable to figure 73

- 111 -

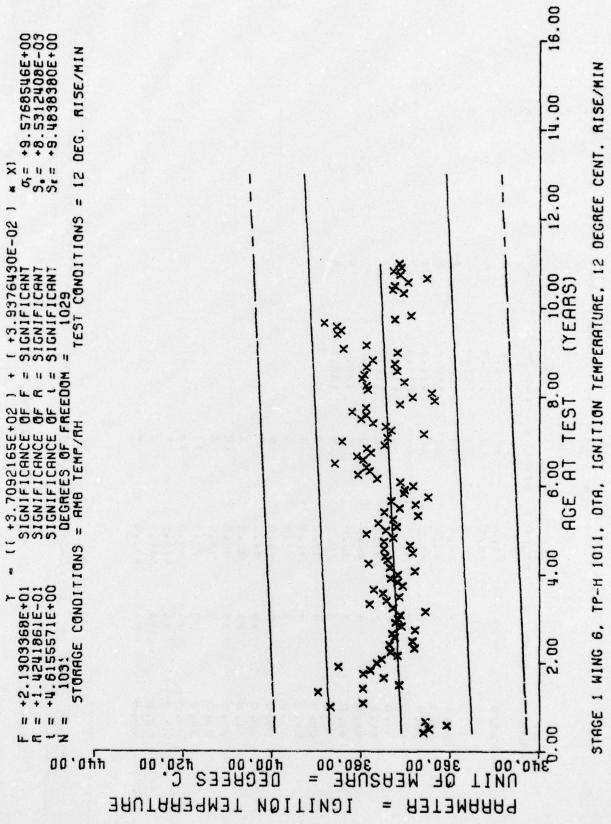


Figure 73

** SAMPLE SIZE SUMMARY ***

																				-						-
NE	SAMPLES	E	9	ñ	£	1	34	13	4	40	25		4													
AGE	(MCNTHS)	104.0	105.0	167.0	108.0	110.0	111.0	112.0	113.0	118.0	119.0	120.0	155.0													A Property of the Park of the
N.	SAMPLES	15	יי	3	30	42	56	42	32	50	3	n	9	3	5	5	•	3		12	6	12	18	9	n	9
AGE	(MUNTHS)	71.0	75.0	6.97	78.0	79.0	80.0	31.	32.0	33.0		86.0	88.0	99.0	0.16	92.0	93.0	94.0	0.56	96.0	0.70	93.0	0.66	100.0	101.0	102.0
a z	SAMPLES	¢	^7	٨	-2	<b>r</b> 7	1	£	•	۲,	· · · · · · · · · · · · · · · · · · ·	ю	r;		3	3	10	18	21	15	5	6	14-	54	7.8	36
¥94	(MINTHS)	29.0	30.0	52.0	34.0	35.0	36.0	37.0	39.0	41.0	42.0	48.0	52.0	53.0	54.0	55.0	59.0	60.0	61.0	62.0	63.0	04.0	0.90	67.0	68.0	6.660
								-			-															

DIFFERENTIAL SCANNING CALORIMETER ENDOTHERM PEAK TEMP STAGE I WING 6

This sample size summary is applicable to figures 74 thru 76

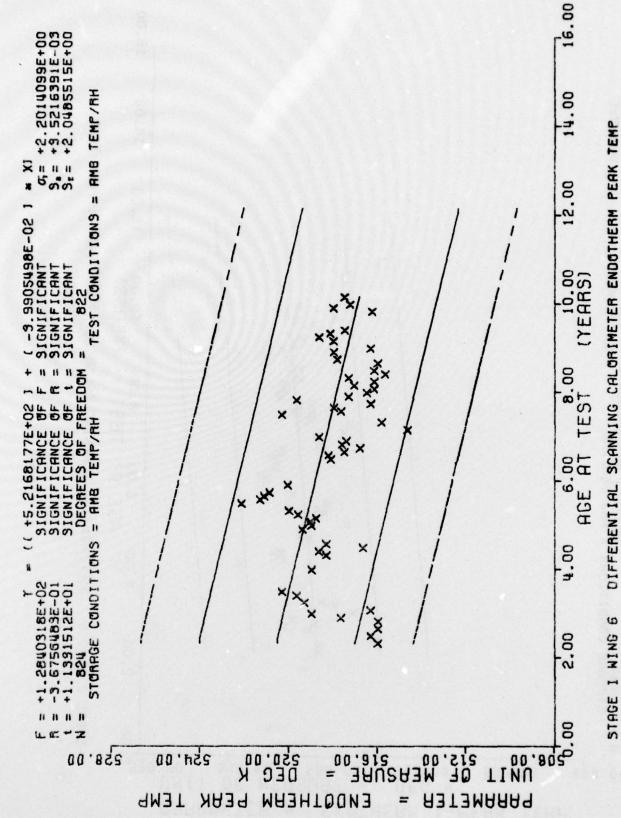
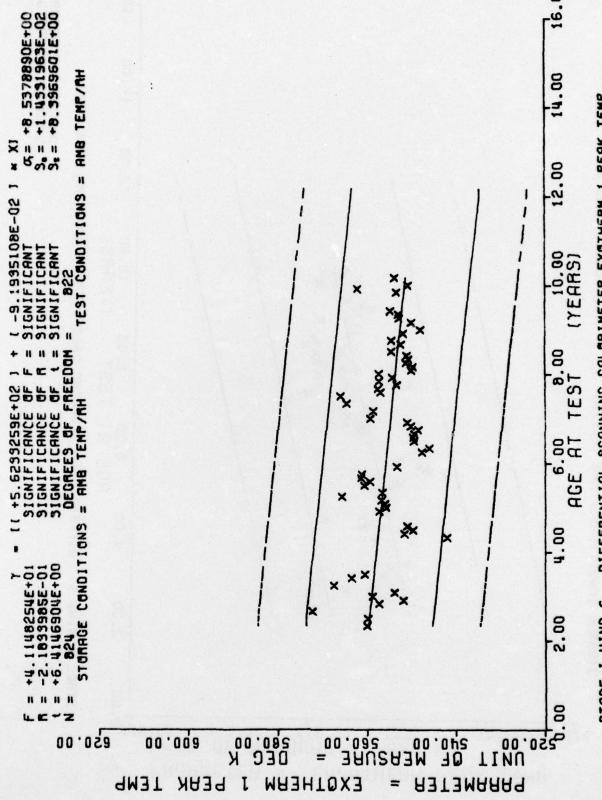
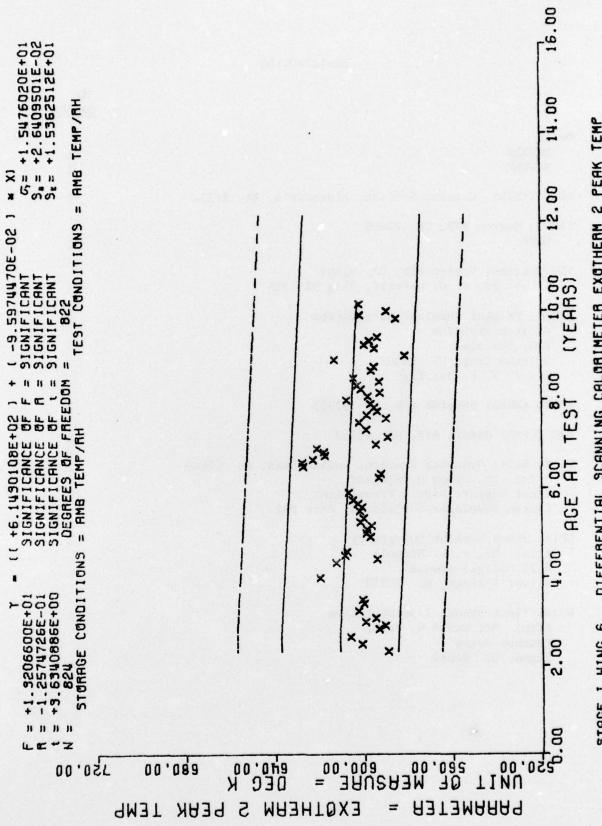


Figure 74



DIFFERENTIAL SCANNING CALORIMETER EXOTHERM I PEAK TEMP 9 STAGE I WING



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DIFFERENTIAL SCANNING CALORIMETER EXOTHERM 2 PERK TEMP STAGE I WING 6

Figure 76

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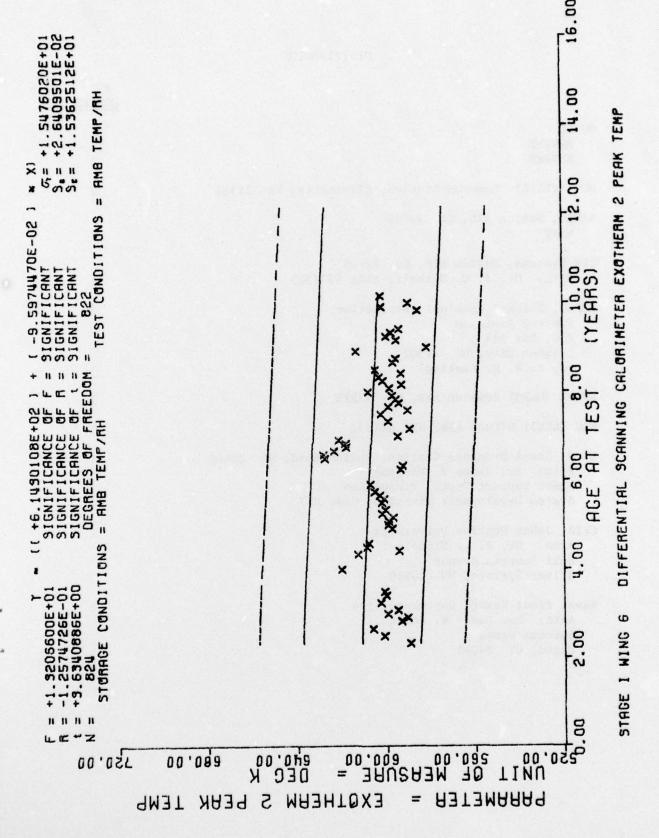


Figure 76

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Block 20 continued

testing and entered into the GO85 computer for storage, analysis and regression analysis. From the statistical analysis of all data tested to date (twelve years for F & G), significant degradation of the propellant does not appear likely for at least two years past the oldest data point.

Each point on the regression plot represents the mean of all samples at that particular age. The number of samples at each point is indicated on the sample size summary sheet on the page accompanying each regression plot or group of regression plots. The data range at any age can be found by suitable inquiry of the GO85 system.